DOCUMENT RESUME

ED 324 778 EA 022 306

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TITLE A New Scenario for Educational Planning and Management in Latin America: The Impact of the External Debt. IIEP Research Report No. 81.
INSTITUTION United Nations Educational, Scientific, and Cultural Organization, Paris (France). International Inst. for Educational Planning.
PUB DATE 90
NOTE 134p.; Appended line graphs will not reproduce clearly due to their small size.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Developing Nations; *Economic Factors; *Educational Finance; Elementary Secondary Education; *Finance Reform; Foreign Countries; *Government Role
IDENTIFIERS *Debt; *Latin America

ABSTRACT

This document examines whether Latin America's external indebtedness has contributed to the financial squeeze in education. The first chapter summarizes a few contradictory studies on the subject. The evidence presented in chapters 2 and 3 supports the conclusion that debt levels in the 1980s have had a negative impact on education as a percentage of government expenditures. As the next two chapters show, there have been changes in the type of educational expenditures. A higher percentage now goes for recurrent expenditures, such as salaries, teaching materials, and scholarships. Chapter 6 is a case study of the adjustment in Costa Rican education. Clearly, the priority given education by Latin American governments has diminished during the current economic or debt crisis. Acknowledging this new scenario of diminished government resources for education and the distortions resulting from quick-fix adjustment, chapter 7 calls for major reforms in educational policy. Chapter 8 suggests numerous propositions to reform Latin American educational planning and management. The major challenge for Latin American governments is to bring forth partnership and responsibility among different social groups so that necessary policy changes become politically feasible. Two statistical appendices are included. (106 references) (MLH)

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IIEP Research Report No. 81

A new scenario for educational planning and management in Latin America

The impact of the external debt

by Fernando Reimers

ED324778

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International Institute for Educational Planning

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Fernando Reimers

Paris 1990

International Institute for Educational Planning
(established by Unesco)

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The costs of this study have been covered through a grant-in-aid offered by Unesco and voluntary contributions made by several Members States of Unesco, the list of which will be found on the inside back cover of this volume.

This volume has been typeset using IIEP's computer facilities and has been printed in IIEP's printshop.

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7 - 9 rue Eugène-Delacroix, 75116 Paris

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Acknowledgements

This paper is based on my doctoral dissertation *Trends in Educational Finance in Latin America. The Impact of the External Debt* I am indebted to the members of my thesis committee: Russel Davis, Noël McGinn and Donald Warwick, for their helpful suggestions with the dissertation and to Ernesto Cuadra for his comments on a draft of this paper. I would also like to thank my wife, Eleonora Villegas Reimers, for the innumerable discussion we had together on this subject and for her suggestions on this and other related papers.

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Introduction

The purpose of this document is to examine the impact of the Latin American external debt on education. This study attempts to examine whether changes in the trends of educational expenditures are significantly related to the trends of the public external debt. Examining the impact of the external debt on government educational expenditures may be of interest to understand the potential of the debt to constrain long term development, given the important role of educational investments for such long term development. Given also that the 'debt problem' is probably not going to be solved in the short run, the analysis of such impact may also stimulate the development of policy alternatives to maintain the contribution of education to development.

The idea that the external debt is a constraint on the public financing of education is not new. Early in 1970 the International Institute for Educational Planning (IIEP) of Unesco launched a project to investigate:

> "the real possibility of the developing countries financing their educational objectives in the course of the United Nations Second Development Decade, bearing in mind the high level of expenditure that has already been reached in most cases, the constant rise in unit costs, and the increasing competition within the state budgets themselves that

> education will probably encounter in the future from the financing of productive investments, *debt servicing*, and other predictable expenditures" [Tibi 1974, p.1, emphasis added].

Some of the studies generated as part of that IIEP research effort recognize the changes in the levels of the external debt as one of the external determinants of availability of resources for education. Tibi, for instance, points to the level and structure of the external public debt as one of the constraints in the future development of educational finance in Tunis [Tibi 1974, pp. 148 and 190].

Latin America is, tragically, the best of all places to test the hypothesis that debt servicing can impede educational development. On the one hand, it is a region where education expanded vigorously in the 1960s and 1970s, on the other, it is the area of the world worst affected by external debt.

My curiosity to understand the external debt and adjustment process in Latin America did not begin as an intellectual enterprise. In February 1983, just before I left Venezuela for graduate studies in the USA, the government introduced an exchange rate control system and a set of fiscal reforms concerning the need to adjust the economy. Even today, the external debt is still given frequent press coverage as one of the major constraints in government behaviour. Correspondence with family and friends has maintained my deep interest and concern in what economic adjustment means in terms of human pain.

When I began my doctoral studies at Harvard I was, however, primarily interested in the planning and implementation of educational reforms. It was in a seminar on organizational theory and policy implementation given by Don Warwick that I first remember discussing the implications of the new fiscal constraints in Venezuela with regard to educational change. I saw the speed of the transformations brought about by the adjustment programme when I returned home in 1984 to attend my father's funeral. On my return to Harvard with a renewed interest in attempting to understand the debt crisis, Russ Davis, my advisor, gave academic shape to my interest. He helped me understand the broader context in which educational planning takes place and its connections with economics and politics. Noel McGinn broadened my interest in education in Venezuela into a regional interest and taught me the importance of research and policy analysis for planning. The courses in

Latin American politics with Jorge Domínguez and Merilee Grindle, and in economic development with Dwight Perkins, Don Snodgrass, Joe Stern and others in the Economics Department opened new perspectives in examining the debt problem and convinced me of its critical importance for the future development of Latin America.

In 1985, when I discussed with Russ the possibility of writing my dissertation on the impact of the debt crisis on education in Latin America,[1] his encouragement showed me that he cared deeply about the subject. From then on, up until the completion of my thesis in March 1988, Russ continually sent me copies of chapters, newspaper clippings or any other useful reference material he found on the subject. We spent many hours discussing chapters of the work as it evolved. Most important of all, he encouraged me to try to understand the subject as far as possible and urged me to move from its diagnosis into developing the implications for educational planning. The extensive Latin American experience of my committee of readers: Russ Davis, Noel McGinn and Don Warwick and their generous advice were invaluable in this undertaking.

This document is based on that doctoral dissertation. I thank the Consejo Nacional de Investigaciones Científicas y Tecnológicas (CONICIT) of Venezuela and the Harvard Institute for International Development for their financial support to this project. I am indebted to the members of my thesis committee for all their feedback and support. In addition to my readers, many people have given comments on some of my writings and stimulated my reflection on the subject. I would like to thank my wife, Eleonora Villegas Reimers, for the innumerable discussions we had on this subject and her suggestions concerning all my written work. I am also grateful to many friends and colleagues for feedback and ideas, including Philip Coombs, Ernesto Cuadra, Jorge Domínguez, Merilee Grindle, Richard Mallon, George Psacharopoulos, Dwight Perkins, Ernesto Schiefelbein, Don Snodgrass, Joe Stern, Raimundo Villegas and my fellow students and teachers at Harvard for

1. My dissertation was later published in Spanish by the Unesco Regional Office for Education in Latin America and the Caribbean (OREALC), Santiago, under the title: *El impacto de la deuda externa latinoamericana en el financiamiento de la educación.*

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their help. Finally, I suscribe to the usual disclaimer that the responsibility for the ideas and interpretations presented here is mine alone.

I also wish to thank Jacques Hallak, John Hall and Claude Tibi of the IIEP for their kind encouragement and assistance in preparing this publication.

Since 1985, I have seen an increased awareness of the impact of the economic crisis and the adjustments imposed on education in Latin America and other regions. At the end of 1988 the IIEP celebrated its 25th anniversary with a meeting which discussed the new role for planning in the new era of financial constraints. In 1989, the Midwest Regional meeting of the Comparative and International Education Society had as its theme the impact of the debt crisis in education. Last week Unesco and the Secretaría de Educación pública of Mexico organized the International Congress on Educational Planning and Management where the implications of the debt were a recurrent theme.

I hope these and future efforts will help to maintain an ongoing discussion on this subject which will explore alternatives to undo some of the damage the adjustment has done to social development. This paper is a modest contribution to that collective effort.

April 1990

Fernando Reimers
Cambridge, Massachussets

Chapter 1

Debt and education in Latin America

In the 1950s education in Latin America began a process of remarkable quantitative expansion and development[1]. The last 30 years have been characterized by optimistic goal setting, and the increased importance of the educational sector in the development agendas of Latin American governments. An outline of that history can be obtained by following the regional conferences of Ministers of Education.

In 1956, the first regional conference in Lima, Peru (the Conference on Free and Compulsory Education) set the stage for the impressive quantitative expansion that would follow[2]. As a result of that meeting, Unesco adopted in the same year the "Major Project on the Extension and Improvement of Primary Education in Latin America", to be completed in 1966.

The next regional conference (Santiago, Chile) in 1962, was a joint meeting of Ministers of Education and Finance which encouraged the idea that education was a necessary condition for economic development. The Santiago Conference set targets of universal primary education in several of the most advanced Latin American countries by 1965. One year later, however, at the Bogotá regional meeting, this target was postponed to 1975.

1. This section is based on Avalos 1978; Unesco 1976a, 1976b; and Blat 1981.

2. In Latin America, the regional ministerial meetings provide policy frameworks that influence specific policies drawn up by each country.

The Buenos Aires conference, in 1966, reiterated the notion adopted in Santiago that education was an investment in economic development. The stimulus that educational systems received from these meetings was important, and all the countries in the region made significant improvements. This was particularly evident at the 1971 regional conference, held in Venezuela. Between 1960 and 1970 the total in-school population in the region grew at a yearly rate of 6.1% [Unesco 1976a, p.21]; this growth outpaced the growth of the school age population in that period. This quantitative expansion of educational systems would not have been possible without major improvements in educational finance. In addition to significant international assistance, national public expenditures in education in the region increased noticeably. Educational expenditures in Latin America, as a percentage of Gross National Product, increased from 2.8% in 1960 [Unesco 1976b, p.93.] to 3.4% in 1976 [Blat 1981, p.70.]. It was against that background of quantitative development that the conference in Venezuela, and the next one in Mexico in 1979, set further targets for the improvement of qualitative aspects of educational systems.

In 1979 a look at the success of the recent past seemed to justify hopes and higher aspirations for the future. For example, the Mexico conference suggested increasing public educational expenditures to a new goal of 7%-8% of Gross Domestic Product (GDP). The underlying logic of these new aspirations may have been that the economic progress which had helped finance the educational expansion of the past would continue. However, a rapid deterioration of the Latin American economies had already begun at the time of the 1979 conference. In fact, only three years after the Mexico regional meeting, Mexican officials suddenly announced their inability to meet their debt obligations. Although Mexico was not the only indebted country, as we will see, 1982 marks the beginning of the recognition of a "debt crisis" in Latin America.

Latin America is the most indebted region of the world. Eleven of the 17 highly indebted countries in the world are Latin American [World Bank 1988, Vol. 1, p. xviii].

Table 1 summarizes the increases in debt levels in Latin America. We can observe that the level of debt servicing as a percentage of exports increased substantially between 1970 and 1987, averaging 4% of growth every year from 1970 levels (unweighted average). Only Haiti and

Panama have lower servicing levels in 1987 than in 1970, all the other countries experiencing increases in those levels (5% per year on average, if we exclude Haiti and Panama). The increases in debt levels are most significant after 1975.

Table 1. Changes in levels of debt servicing as a percentage of exports in Latin America

Country	Debt servicing as a percentage of exports				Annual growth (%) in debt servicing as % of exports			
	1970	1975	1980	1987	70-75	75-80	80-87	70-87
Argentina	21.6	22.0	16.6	45.3	0.37	-5.48	15.42	4.45
Bolivia	11.3	15.3	27.9	22.1	6.25	12.77	-3.27	4.02
Brazil	12.5	17.9	34.6	26.7	7.45	14.09	-3.64	4.57
Chile	19.2	27.2	21.9	21.1	7.21	-4.24	-0.53	0.56
Colombia	11.6	10.8	8.9	30.7	-1.42	-3.80	19.35	5.89
Costa Rica	10.0	10.7	16.8	12.1	1.36	9.44	-4.58	1.13
Dom. Rep.	4.1	4.7	10.3	16.3[a]	2.77	16.99	7.95	9.01
Ecuador	8.6	4.4	18.9	20.7	-12.54	33.84	1.31	5.30
El Salvador	3.6	9.0	3.3	19.4	20.11	-18.18	28.79	10.42
Guatemala	7.4	1.8	2.4	24.9	-24.63	5.92	39.68	7.40
Haiti	16.7	4.6	4.9	5.1	-22.73	1.27	0.57	-6.74
Honduras	2.8	4.7	10.1	23.0	10.91	16.53	12.48	13.19
Mexico	23.6	24.9	32.1	30.1	1.08	5.21	-0.91	1.44
Nicaragua	10.5	12.0	16.0	10.9[a]	2.71	5.92	-6.20	0.23
Panama	7.7	5.9	6.0	6.5	-5.19	0.34	1.15	-0.99
Paraguay	11.8	9.3	10.2	21.3	-4.65	1.86	11.09	3.54
Peru	11.6	25.6	31.1	12.5	17.15	3.97	-12.21	0.44
Uruguay	21.7	41.2	12.4	24.4	13.68	-21.35	10.15	0.69
Venezuela	2.9	5.3	13.3	22.4	12.82	20.20	7.73	12.78

[a] These figures are for 1986.

Source: World Bank, *World Debt Tables*, 1988.

The average (unweighted) annual growth in levels of debt servicing for all the countries of the region, increased from under 2% between 1970-75, to 5% between 1975-80, and to 6.5% between 1980-87.

The rationale to expect an impact of the external debt in educational finance stems from the adjustment programmes undertaken as a response to balance of payments difficulties, structural adjustment involves reductions in government expenditures as a means to curb domestic aggregate demand. Governments may implement adjustment programmes voluntarily or under pressure from international financial institutions in order to receive more loans.

Once governments are faced with the fact that they have to cut their spending, the next question is what has to be cut and the proportion of cuts for each sector.

Although there is agreement on the need for systematic analysis of the effects of the debt on social spending [World Bank 1986a, p.20; de Vries 1986, p.66; Wionczek 1985, p. xi], few studies have examined this relationship empirically.

Lewin has developed a comprehensive theoretical model of the forces that influence educational expenditures; he suggests that debt and conditionality, as well as reduced international trade and foreign assistance, are among those forces that would reduce the ability of governments to finance education [Lewin 1986, 1987]. From a conceptual analysis of those factors Lewin deduces seven hypothetical propositions regarding the impact of austerity: (1) "in periods of restraint it is education budgets that are likely to shoulder a substantial share of the burden of cuts", (2) "with stable or contracting budgets structural changes are likely to occur in their distribution" to the detriment of non-salary and capital expenditures, (3) "expenditure, at least in unit cost terms, at primary level will suffer more relative to secondary provision which in turn will suffer more relative to tertiary provision", (4) "formal provision is likely to be less vulnerable than pre-school, out-of-school or post-school non formal provision", (5) reductions in recurrent costs will result in reductions in quality, (6) the importance of cost-recovery will increase and (7) there will be increased dependence on foreign aid for innovation and curricular development [Lewin 1986, p.223-225]. The analysis offered in support of these propositions is theoretically consistent and provides a basis for a range of options for planners to resist those pressures.

Hicks and Kubisch (1984) investigated the vulnerability of different sectors to cuts when total government expenditures were reduced in 32 countries. They concluded that defence and social spending were less vulnerable to reductions than spending on infrastructure and production [Hicks and Kubisch 1984, p.38].

Unicef produced a series of reports on the impact of the world recession on children, with particular emphasis on health and limited evidence on education. The case studies presented in the Unicef report found no evidence that the recession had increased the infant mortality rate in four Latin American countries: Brazil, Chile, Costa Rica and Cuba [Unicef 1984, p.156]. However, the case studies were conducted in 1982 and 1983, and the report itself suggests that there may be time lags mediating the impact of the new economic conditions and infant mortality rates.

Another study analyzed the social effects of the debt in Mexico, and concluded that education was one of the hardest-hit areas. In one single year, between 1982 and 1983, after Mexico declared its inability to meet debt obligations, educational expenditures fell from 5.5% to 3.9% of GDP and from 9.3% to 7.9% of the total government budget [Dieguez 1986, p.16]. A similar report for Costa Rica concluded that "During the crisis (of 1981-82) dropout rates increased and enrolment rates decreased." [Vedova 1986, p.7].

Psacharopoulos and Steier (1986) directly examined the hypothesis that high debt service payments result in reductions of public expenditures on long gestation social investments like education and health. Using a dataset of 125 countries in the period 1975-1985 this study regressed education, health and government investment on debt servicing as a percentage of government expenditure. The authors conclude that in all regions there has been a decline in the investment of government expenditure, but that this reduction has been sharpest in Latin America where debt servicing is highest. In addition, they conclude that the reductions in education as a percentage of government expenditure in Latin America are related to the increase in government servicing of the debt [Psacharopoulos and Steier 1986, p.3].

In the context of testing the hypothesis that educational expenditures are a function of economic well-being, Tilak (1989) examined the effect of debt on the level of expenditures. Using regression analysis of cross-country data in a given year, he obtained a

positive correlation between debt and education as a percentage of Gross National Product as well as between debt and education expenditures as a percentage of total government expenditures [Tilak 1989, p. 142].

Prawda analyzes how the ballooning effect of debt-servicing in the Mexican budget led to falls in the allocation for education and in expenditures per pupil [Prawda 1989, p.182-193].

Tibi (1989) has shown how the pressures that act on government budgets led to cuts in government expenditures in several Latin American countries.

Using data for the countries of traditional Latin America[3], another study examined the impact of debt levels in public educational finance [Reimers 1988, 1989e]. Combining regression analysis of time series with several case studies this research concludes that the impact of debt on education is less than automatic. Of particular importance in this impact are the adjustment policies undertaken by many governments in the 1980s. The main conclusion of these studies is that the influence of debt on education (via structural adjustment programmes) is not linear. It has had a negative impact this decade, the decade of the debt crisis. Another paper discusses the role of political, organizational and bureaucratic factors in the formulation of the state budget on the disproportionate reductions in education [Reimers 1990a].

To summarize, the evidence regarding the impact of the debt on education seems both scanty and contradictory. Of the few existing studies some indicate that education declines as a priority of the government while debt rises, and other studies indicate that "social spending" (including education) is particularly protected. The reasons for the contradictory evidence may be the different approaches authors have used to aggregate data and to analyze them as well as the different measures of education and debt used.

The objective of this study is to examine the hypothesis that the levels of external indebtedness have contributed to the financial squeeze in education in Latin America. The paper further examines the changes in the structure of educational expenditures and discusses some policy implications of the new financial scenario for educational planning.

3. By traditional Latin America we refer to the countries of the Region sharing historical and institutional heritage, namely the Spanish-speaking countries, plus Brazil and Haiti.

Chapter 2

The impact of debt payments on educational expenditures

I estimated the association between time series of three indicators of educational expenditures and of each of seven indicators of public debt in each of the countries of Latin America for which those series of indicators were available[1]. The indicators of educational expenditures were: expenditures in education of the central government in constant figures of local currency at 1980 values[2] (CEDEXP), expenditures in education of the central government as a percentage of total central government expenditures (EDGOV), expenditures in education of the central government as a percentage of total central government expenditures *excluding government expenditures in debt servicing* (EDGOVNET). The indicators of government debt were: government interest payments as a percentage of government expenditures (INTGOV) which includes payments of both external and domestic debt, total external debt outstanding and disbursed as a percentage of exports (DODXGS), total external debt outstanding and disbursed as a percentage of Gross National Product (DODGNP), total debt servicing as a percentage of exports (TDSEXP), total debt servicing as a percentage

1. The sources for these indicators where the IMF *Government Finance Statistics Yearbook*, and the World Bank *Debt Tables*.

2. We used the Consumer Price Index (CPI) to deflate current figures because the greater part of the educational budget goes to salaries, which are properly deflated using this index of inflation as it affects individual households.

of Gross National Product (TDSGNP), interest payments as a percentage of Gross National Product (INTGNP) and interest payments as a percentage of exports (INTXGS). The series covered the period between 1970 and 1988, wherever data were available for each country within that period.

The association between each pair of debt and education series was estimated using an Ordinary Least Squares regression if there was not significant autocorrelation between the series (0.05 level). If the observed autocorrelation was significant, on the other hand, the Cochrane Orcutt procedure was used to estimate the coefficient of determination and slope of the association. Appendix A summarizes the results of the test of autocorrelation, OLS and Cochrane Orcutt methods of all the associations examined at this level. In addition, bivariate plots of those series were examined to detect non-linear patterns. The yearly trends of each of the indicators were also examined (Appendix B). The following section summarizes the findings of this analysis[3].

Argentina. All the associations of the various debt indicators and educational expenditures as a percentage of government expenditures (EDGOV and EDGOVNET) are negative and statistically significant or borderline significant[4]. On the other hand, the associations with Constant government expenditures are not significant. Notice in Appendix B that the trend in constant education expenditures is very erratic, while debt levels increase steadily.

Bolivia. Most of the observed associations are not statistically significant. The bivariate plots suggest that the association between debt and education is non-linear; the relationship in the more recent years is distinctly outside the previous pattern.

Brazil. Like in Argentina, the observed associations are negative and statistically significant for educational expenditures as a percentage of government expenditures. They are not significant for total

3. Countries of traditional Latin America such as Cuba, Colombia and Haiti, were not included in this part of the analysis because the series of more than a few datapoints in which regressions had to be run, were not available.

4. Unless otherwise stated, all references to 'significance' in this paper imply a significance level (alpha) of 0.05, that is the probability of rejecting the null hypothesis (that debt and education are not related) 5 times in a 100 when the null hypothesis is in fact true.

educational expenditures, a clear change in structure is observed in the association between the debt various indicators and total educational expenditures; this association is positive up to a point, and then flattens out or becomes negative. We will discuss this non-linear pattern later on since, in many countries, it characterizes the association between debt and total educational expenditures.

Chile. Only a few of the associations with education as a percentage of government (EDGOV and EDGOVNET) are negative and statistically significant.

Costa Rica. Most of the associations are negative and statistically significant, with education as a percentage of government expenditures. We notice a change in structure as regards associations with constant educational expenditures.

Dominican Republic. This is the first country in which we observe associations which are positive and statistically significant. This constitutes negative evidence against the hypothesis of this paper. There is a marked shift in the trend of educational expenditures in the early 1980s, from increasing to decreasing levels, this results in a non-linear association with debt levels.

Ecuador. Like the Dominican Republic the observed associations in this country are positive and statistically significant. Here, too, we notice a change in the trend of expenditures in the 1980s and the similar dual structure when associated with debt as discussed above.

El Salvador. Most of the observed associations are negative and statistically significant for all the indicators of educational expenditures.

Guatemala. The associations between the series in this country are also positive and statistically significant. Notice, however, that these series are shorter than the other series discussed so far in that they only cover the period between 1972 and 1979.

Honduras. Although this is another short series (pre-1980) the associations observed here with educational expenditures as a percentage of government expenditures are negative and statistically significant. The associations with constant educational expenditures, on the other hand, are positive.

Mexico. Most of the associations between the series in this country are negative and statistically significant. There is also a change in structure in the associations involving constant educational expenditures.

Nicaragua. This series, too, is pre-1980, and most of the associations observed of education is considered as a percentage of government expenditures are negative and statistically significant. There is no impact on constant educational expenditures.

Panama. Few of the associations examined in this country are statistically significant. Notice in Table 1, however, that this country has the lowest external debt levels in the region.

Paraguay. Like in Panama, none of the associations observed here are statistically significant, although there appears to be a change in the structure of the association.

Peru. Although the series ends in 1982, most of the associations are negative and statistically significant.

Uruguay. Most of the associations between the series are negative and statistically significant.

Venezuela. Most of the observed associations are positive and statistically significant, thus constituting another point of evidence against the hypothesis of this paper. Notice, however, the change in the structure of the series of total educational expenditures in the eighties, which leads to the same dual structure in the association with debt discussed earlier.

This evidence supports the conclusion that debt levels have a negative impact on education *as a percentage of government expenditures*. Many of the countries with significant negative associations between debt and relative levels of education, however, show positive or no association between debt and constant educational expenditures. The examination of the bivariate plots of these series suggests that this is due to a change in the structure of the association between debt and education in or around 1980; before that point the association between debt and education is positive, either smoothing out or becoming negative. Figure 1 illustrates the presence of this change in structure for the association between debt servicing as a percentage of exports and constant government expenditures in education in Brazil. Notice how educational expenditures grow from 45 to 100 million of cruzados while debt servicing remains below 20% of exports, but the growth of expenditures stabilizes once debt levels rise. The change in structure is even sharper in Costa Rica for the same indicators. Figure 2 shows that the decline in educational expenditures begins only once debt-servicing exceeds 20% of exports.

Figure 1. Brazil: Impact of debt-servicing on education expenditures (education expenditures in millions of cruzados - 1980 prices)

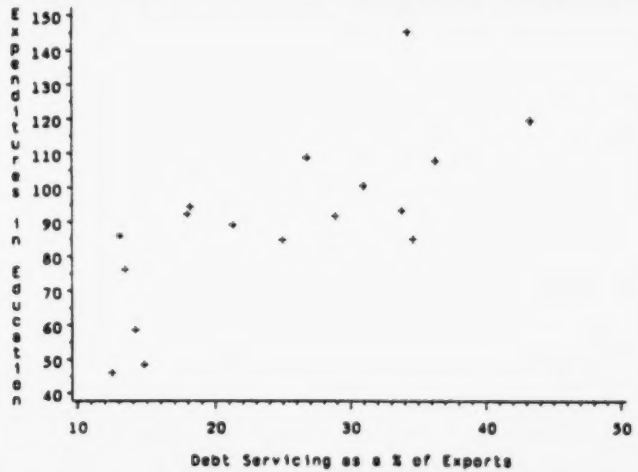
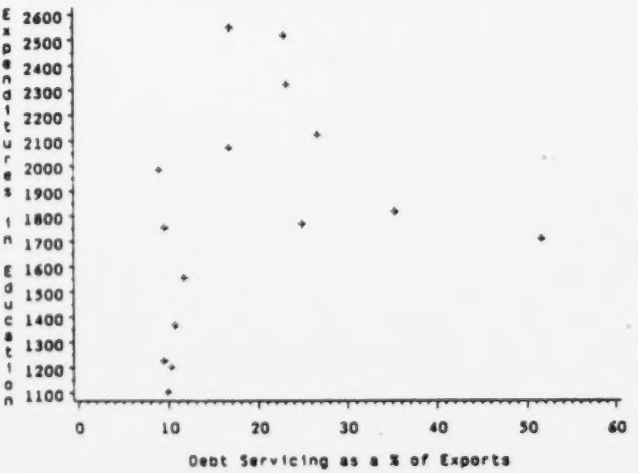


Figure 2. Costa Rica: Impact of debt-servicing on education expenditures (education expenditures in millions of colones - 1980 prices)



Keeping in mind the limitation of these linear estimates of the association, especially for the cases discussed earlier, Table 2 summarizes the associations between the various indicators of debt and of educational expenditures which were statistically significant.

We can observe in Table 2 that the evidence supporting a negative impact of debt levels on education outweighs the evidence supporting a positive association between them. Of the 17 countries examined, there are eight in which at least one debt indicator has a statistically significant negative impact on constant educational expenditures. The five countries in which at least one of the debt indicators is positively related to education expenditures are evidence supporting the notion that there is no uniform association between debt and education in the period 1970-86. It is really after 1980 that the relationship between debt and education, positive up until then, flattens out, thus the effect of the debt is on the rate of growth of educational expenditures, rather than on the absolute levels of expenditures themselves. Notice that of these countries, Bolivia, Brazil, Dominican Republic and Ecuador have non-linear patterns as discussed earlier[5]. The data for Honduras, on the other hand, cover only until 1979.

The evidence of negative impact of debt is stronger, as we had already pointed out, on education as a percentage of total government expenditures. There are eleven countries in which there is at least one debt indicator with a significant negative association with education as a percentage of central government expenditures. There are only four countries in which at least one of the debt indicators is positively related to education as a percentage of government expenditures. Of those, Guatemala and Honduras refer to series before 1980, which is consistent with our hypothesis that the impact of the debt was sharper as from 1980. Dominican Republic and Venezuela, however, remain as two cases firmly contradicting our hypothesis.

Similar results are observed for the association between debt and education as a percentage of government expenditures, net of interest payments.

5. The observed linear estimate is positive because it is responsive to the longest segment of what is really a two-part association, one positive which later flattens out.

Table 2. Associations between debt and education series that are statistically significant (level 0.05) (cf. Appendix A.)

in constant figures		Educational expenditures: as % of total govmt.		as % of net govmt.	
a. Impact of total debt as a percentage of GNP (DODGNP)					
CEDEXP negative	CEDEXP positive	EDGOV negative	EDGOV positive	EDGOVNET negative	EDGOVNET positive
Brazil Costa Rica El Salvador Mexico Peru Uruguay	Honduras	Argentina Brazil Chile El Salvador Honduras Mexico Nicaragua Peru	Venezuela	Argentina Chile El Salvador Honduras Nicaragua	Venezuela
b. Impact of total debt as a percentage of XGS (DODXGS)					
CEDEXP negative	CEDEXP positive	EDGOV negative	EDGOV positive	EDGOVNET negative	EDGOVNET positive
El Salvador Uruguay	Brazil Ecuador Honduras	Argentina Brazil Chile Costa Rica El Salvador Honduras Nicaragua	Dom. Rep. Venezuela	Argentina Costa Rica Honduras Nicaragua	Dom. Rep. Venezuela

c. Impact of interest payments as a percentage of GNP (INTGNP)

CEDEXP negative	CEDEXP positive	EDGOV negative	EDGOV positive	EDGOVNET negative	EDGOVNET positive
El Salvador Peru Uruguay	Ecuador Honduras	Argentina Brazil Costa Rica El Salvador Honduras Mexico Panama Peru	Venezuela	Argentina Brazil Costa Rica El Salvador Honduras Mexico Peru	Venezuela

d. Impact of interest payments as a percentage of exports (INTXGS)

CEDEXP negative	CEDEXP positive	EDGOV negative	EDGOV positive	EDGOVNET negative	EDGOVNET positive
El Salvador Uruguay	Brazil Ecuador Honduras	Argentina Brazil Costa Rica Honduras El Salvador	Dom. Rep. Venezuela	Argentina Brazil Chile Costa Rica El Salvador Honduras	Dom. Rep. Venezuela

e. Impact of interest payments as a percentage of government (INTGOV)

CEDEXP negative	CEDEXP positive	EDGOV negative	EDGOV positive	EDGOVNET negative	EDGOVNET positive
Chile El Salvador Honduras Mexico Peru Uruguay	Dom. Rep.	Argentina Costa Rica El Salvador Mexico Nicaragua Peru	Dom. Rep. Guatemala Honduras Venezuela	Costa Rica El Salvador Peru	Dom. Rep. Guatemala Honduras Venezuela

f. Impact of debt servicing as a percentage of GNP (TDSGNP)

CEDEXP negative	CEDEXP positive	EDGOV negative	EDGOV positive	EDGOVNET negative	EDGOVNET positive
Peru Uruguay	Bolivia Ecuador Honduras	Argentina Brazil Costa Rica Honduras Peru Uruguay	Dom. Rep. Venezuela	Argentina Brazil Costa Rica Honduras Peru Uruguay	Dom. Rep. Venezuela

g. Impact of debt servicing as a percentage of exports (TDSXGS)

CEDEXP Negative	CEDEXP Positive	EDGOV Negative	EDGOV Positive	EDGOVNET Negative	EDGOVNET Positive
El Salvador Uruguay	Bolivia Brazil Dom. Rep. Ecuador Honduras	Brazil Costa Rica Honduras Uruguay	Dom. Rep. Guatemala Venezuela	Brazil Costa Rica Honduras Uruguay	Chile Dom. Rep. Guatemala Venezuela

The magnitude of the impact of debt payments on educational expenditures is indicated by the slopes of the association in Appendix A. As an illustration of this impact let us take the coefficients of the association between interest payments as a percentage of government expenditures, and education as a percentage of government expenditures (net of interests)

	gradient
Costa Rica	-3.05
El Salvador	-0.68
Peru	-0.46

In Costa Rica, on average, for every 1% increase in interest payments as a percentage of government expenditures, education falls by 3% as a percentage of all the other expenditures. In El Salvador, the same increase in interest payments entails a 0.68% reduction in educational expenditures as compared to all other expenditures, and in Peru, every increase of 1% in interest payments diminishes education expenditures a 0.46% reduction. (For other specific estimates of effects refer to Appendix A).

Chapter 3

Reductions in levels of educational expenditures

Having analyzed the impact of the debt payments, we will now examine the changes in educational expenditures. Table 3 presents figures of constant educational expenditures for three points in time between the early 1970s and mid 1980s in national currency units.

We can observe that the annual rate of growth of constant expenditures in education is substantially higher before 1980 than after this period. In all the countries examined constant educational expenditures grew, on average, by 6.99% per year between 1970 and 1979 (unweighted average). After 1980, however, that growth became negative, -0.01% on average. This reinforces our analysis of the impact of the debt on total educational expenditures; the impact of the debt was to slow down the rate of growth of educational expenditures, and even though there are no net reductions in many countries, in most of them the expansion of educational expenditures flattens out during the period of highest debt levels.

Table 4 summarizes the changes in educational expenditures as a percentage of total central government expenditures. The annual rate of growth is negative for most countries (except Paraguay and Venezuela), averaging -2.72%, and reaching up to -7.32% per year in the case of Bolivia. A less dramatic change is observed in education expenditures as a percentage of government expenditures net of interest payments, even so the annual rates of growth are negative in most countries, averaging -0.02% per year.

Table 3. Changes in educational expenditures of the central government (constant 1980 in national currency units) before and after 1980

Country	year	Educational expenditures pre-1979	1979	post-80	Annual growth (%) pre-79	post-80
Argentina	1976-86	330.00	415.66	376.49	8.00	-0.01
Bolivia	1972-84	2.35	5.30	5.51	12.32	0.01
Brazil	1970-86	46.00	107.86	145.34	9.93	0.04
Chile	1972-86	10.00	44.08	38.75	23.60	-0.02
Costa Rica	1972-86	1 103.63	2 516.00	2 122.24	12.49	-0.02
Dom. Republic	1973-86	122.25	154.49	123.01	3.98	-0.03
Ecuador	1973-85	5 339.10	7 913.00	12 142.60	6.78	0.07
El Salvador	1970-87	183.47	292.60	149.77	5.32	-0.08
Guatemala	1972-79	99.00	109.33	109.34	1.43	
Honduras	1972-79	114.55	182.52	182.53	6.88	
Mexico	1972-87	46.65	119.21	81.94	14.34	-0.05
Nicaragua	1972-80	565.06	498.65	734.00	-1.77	
Panama	1973-86	137.39	163.60	225.85	2.95	0.05
Paraguay	1972-86	4 486.57	7 003.67	6 544.72	6.57	-0.01
Peru	1972-82	152.93	107.17	169.90	-4.95	
Uruguay	1972-86	1 705.88	1 784.31	1 412.04	0.64	-0.03
Venezuela	1970-86	4 082.80	9 863.90	10 908.30	10.30	0.01

Source: IMF. *Government Finance Statistics Yearbook*. Several issues.

The third column (pre-1979) contains the expenditures in the beginning of the series indicated in the second column (year), the fourth column (1979) contains the expenditures in 1979, the fifth column (post-1980) contains the expenditures in the end of the series indicated in the second column. The sixth column (annual growth pre-1979) is the average annual growth percentage of expenditures between the beginning of the series and 1979. The last column (annual growth post-1980) is the average annual growth percentage of expenditures between 1979 and the end of the series.

The figures are given in the following units:

Argentina: thousands of australes; Bolivia: thousands of bolivianos; Brazil: millions of cruzados; Chile: billions of pesos; Costa Rica: millions of colones; Dominican Republic: millions of pesos; Ecuador: millions of sucres; El Salvador: millions of colones; Guatemala: millions of quetzales; Honduras: millions of lempiras; Mexico: billions of pesos;

Nicaragua: thousands of cordobas; Panama: millions of balboas; Paraguay: millions of guaranies; Peru: millions of intis; Uruguay: millions of new pesos; Venezuela: millions of bolivares.

Table 4. Changes in educational expenditures as a percentage of total expenditures of the central government

Country	Education as % of govmt. expenditures period	beginning	end	Annual growth(%)
Argentina	1970-86	10.19	6.03	-3.23
Bolivia	1972-84	30.45	12.23	-7.32
Brazil	1970-86	6.72	3.33	-4.29
Chile	1972-86	14.28	12.53	-0.93
Costa Rica	1972-86	28.29	16.22	-3.90
Dom. Republic	1973-85	14.24	12.84	-0.86
Ecuador	1973-85	27.48	24.45	-0.97
El Salvador	1970-87	22.29	17.08	-1.55
Guatemala	1972-79	19.43	12.56	-6.04
Honduras	1972-79	22.34	17.80	-3.19
Mexico	1972-88	16.56	7.43	-4.89
Nicaragua	1970-80	17.60	11.59	-4.09
Panama	1973-86	20.69	15.90	-2.01
Paraguay	1972-86	12.12	12.23	0.06
Peru	1972-82	22.68	18.47	-2.03
Uruguay	1972-86	9.47	7.11	-2.03
Venezuela	1970-86	16.49	19.55	1.07

Source: *Government Finance Statistics Yearbook*, IMF. Several issues. (Annual growth derived as percentage compound growth).

This summary of the changes in educational expenditures adds light to our earlier discussion of the impact of debt on education. All countries experienced a slow-down of the expansion of educational expenditures (which led to net declines of expenditures only in some of the cases) and a decline (except in the case of Venezuela) in the levels of education as a percentage of government expenditures.

Table 5. Changes in educational expenditures as a percentage of total expenditures of the central government net of interest payments (EDGOVNET)

Country	Education as % of net govmt. expenditures period	beginning	end	Annual growth (%)
Argentina	1970-86	10.39	6.54	-0.03
Bolivia	1972-84	31.33	12.51	-0.07
Brazil	1970-86	7.19	5.90	-0.01
Chile	1972-86	11.11	13.28	0.01
Costa Rica	1973-86	31.30	17.82	-0.04
Dom. Republic	1973-85	14.40	13.48	-0.01
El Salvador	1971-87	25.05	18.66	-0.02
Guatemala	1972-79	20.49	13.24	-0.06
Honduras	1972-76	23.55	21.48	-0.02
Mexico	1972-88	18.01	16.76	-0.00
Nicaragua	1970-80	17.96	12.56	-0.04
Panama	1973-86	22.34	20.34	-0.01
Paraguay	1972-86	12.49	13.12	0.00
Peru	1972-82	23.81	22.05	-0.01
Uruguay	1972-86	9.70	7.74	-0.02
Venezuela	1970-86	16.77	23.36	0.02

Source: *Government Finance Statistics Yearbook*, IMF. Several issues. (Annual growth derived as percentage compound growth).

These reductions are also observed with national figures of educational expenditures. Table 6 summarizes the changes in total educational expenditures as a percentage of government expenditures at the national level. We can notice in Table 6 that for most countries there are reductions, averaging over 1% per year for the region (unweighted). The magnitude of the change is similar to that observed for central figures of expenditures for Argentina, Ecuador, Panama and Paraguay. The reductions are smaller at the national level than at the central level for Bolivia, Costa Rica, Guatemala, Honduras, Nicaragua and Peru. On the other hand, those reductions are larger at the national level than at the central level for Chile, Dominican Republic, El Salvador, Uruguay and Venezuela. Only Brazil and Mexico show increases in expenditures at the national level while showing decreases at the central level.

Table 6. Changes in levels of educational expenditures as a percentage of total government expenditures

Country	Education as % of govmt. expenditures period	beginning	end	Annual growth(%)
Argentina	1970-86	14.40	7.50	-4.00
Bolivia	1970-83	28.40	21.30	-2.19
Brazil	1970-85	10.60	17.20	3.28
Chile	1970-85	22.00	15.30	-2.39
Colombia	1970-86	13.60	24.70	3.80
Costa Rica	1970-86	31.80	20.40	-2.74
Dom. Rep.	1970-86	15.90	10.00	-2.86
Ecuador	1970-85	23.20	20.60	-0.79
El Salvador	1970-82	27.60	8.50	-9.35
Guatemala	1970-84	17.50	12.40	-2.43
Haiti	1976-85	7.90	16.50	5.03
Honduras	1970-86	18.40	16.40	-0.72
Mexico	1970-85	8.50	16.20	4.39
Nicaragua	1970-86	18.10	12.60	-2.24
Panama	1970-86	22.10	14.30	-2.68
Paraguay	1970-85	15.30	16.70	0.59
Peru	1970-86	18.80	15.70	-1.12
Uruguay	1970-86	26.10	14.50	-3.61
Venezuela	1970-85	22.90	21.30	-0.48

Source: *Statistical Yearbook*, Unesco. Several issues.

Table 7 summarizes the changes in the level of national educational expenditures relative to the Gross National Product. We notice that there are reductions in 12 of the 19 countries and in one of them there is no growth. Given that most of these countries experienced reductions in the rate of growth of their GNP the decline of educational expenditures as a percentage of GNP indicates a larger decline in the growth of absolute expenditures.

Table 7. Changes in levels of educational expenditures as a percentage of Gross National Product.

Country	period	Education as a % of GNP beginning	end	Annual growth(%)
Argentina	1970-86	1.90	1.80	-0.34
Bolivia	1970-84	3.30	0.50	-12.61
Brazil	1970-85	2.90	3.30	0.87
Chile	1970-85	5.10	4.50	-0.83
Colombia	1970-86	1.90	2.90	2.68
Costa Rica	1970-86	5.20	5.20	0.00
Dom. Rep.	1970-86	2.90	1.60	-3.65
Ecuador	1970-86	4.20	3.40	-1.31
El Salvador	1970-84	2.90	3.00	0.24
Guatemala	1970-85	2.00	1.80	-0.70
Haiti	1970-86	1.30	1.20	-0.50
Honduras	1970-86	3.10	5.00	3.03
Mexico	1970-86	2.40	2.10	-0.83
Nicaragua	1970-86	2.30	6.60	6.81
Panama	1970-86	5.50	5.00	-0.59
Paraguay	1970-85	2.20	1.50	-2.52
Peru	1970-86	3.40	1.70	-4.24
Uruguay	1970-86	3.60	3.10	-0.93
Venezuela	1970-85	4.70	6.80	2.49

Source: *Statistical Yearbook*, Unesco. Several issues.

With continued population growth, these reductions have led to net reductions in expenditures on education per capita as can be seen in Table 3. Between 1970 and 1980 per capita expenditures in education decreased in real terms only in Paraguay. Paradoxically, between 1980

and 1988 per capita expenditures decreased in real terms in 15 of the 19 countries examined. On average (unweighted) per capita expenditures in education of the central government *increased by 3.38% in the 1970s but decreased by 2.39% in the 1980s.*

Table 8. Central government expenditures in education per capita in 1988 US $, by country, 1970-1988

Country	Expenditures per capita (1988 US$) 1970	1980	1988	Annual growth rates (percentages) 1970-80	1980-88	1970-88
Argentina	30.75	63.82	37.20	7.58	-6.52	1.06
Bolivia	25.35	37.35	13.11[86]	3.95	-16.00	-4.04
Brazil	16.46	17.36	37.07[86]	0.54	13.47	5.20
Chile	87.20	100.30	62.95	1.42	-5.66	-1.79
Colombia	20.29[71]	36.68	39.99	6.80	1.09	4.07
Costa Rica	62.05	148.40	87.16	9.11	-6.44	1.91
Dominican Rep.	26.72[71]	31.43	15.09	1.82	-8.77	-3.31
Ecuador	25.31	83.79	42.83	12.72	-8.05	2.97
El Salvador	29.92	38.25	26.81[85]	2.48	-6.86	-0.73
Guatemala	28.44[72]	33.58	32.85[87]	2.10	-0.31	0.97
Haiti	2.92	3.86	3.35[85]	2.83	-2.78	0.93
Honduras	25.80	28.62	38.29	1.04	3.71	2.22
Mexico	35.56[71]	89.03	73.13[85]	10.73	-3.86	5.28
Nicaragua	34.38	40.14	30.30	1.56	-3.45	-0.70
Panama	84.71	133.70	145.50[87]	4.67	1.22	3.24
Paraguay	14.89	6.44	15.10[87]	-8.03	12.93	0.08
Peru	49.72	51.48	38.60[85]	0.35	-5.59	-1.67
Uruguay	63.55[72]	64.42	59.78	0.17	-0.93	-0.38
Venezuela	153.10	193.30	165.30[86]	2.36	-2.57	0.48
Unweighted average annual growth				3.38	-2.39	0.83

Source: Inter-American Development Bank. *Economic and Social Progress in Latin America 1989 Report*. Washington. D.C.

Chapter 4

Changes in the type of educational expenditures

This section analyzes the changes that occur in the distribution of expenditures.

Table 9 shows that there are increases in the proportion of current educational expenditures. We can see that such growth is more noticeable in recent years than between 1970-75 or even 1975-80. The number of countries where the percentage of current expenditures increases in the period goes from 7 in 1970-75 and 1975-80 to 14 in 1980-86. The unweighted average yearly growth goes from negative growth between 1970-75 and 1975-80 (meaning a higher percentage in capital expenditures) to a positive of almost 1% of the base, which is a significant amount considering the high levels of these figures, a yearly increase of less than one percent from a base of 95% going to current expenditures, means an increase to 99.6% over 5 years (as the case of Chile illustrates). This suggests that the more recent years of the adjustment phase have seen a lesser percentage of development expenditures in education.

Table 9. Current educational expenditures as a percentage of total expenditures

	Educational expenditure as % of total expenditure				Annual growth as a % of total expenditure			
	1970	1975	1980	1986	70-86	70-75	75-80	80-86
Argentina	90.7	93.8	84.5	87.7	-0.21	0.84	-2.07	0.62
Bolivia	99.7	99.9	96.0	99.6[b]	-0.01	0.05	-0.79	0.92
Chile	88.8	94.4	94.9	99.6[a]	0.77	1.54	0.11	0.97
Colombia	78.6	85.4	93.3	93.4	1.08	2.10	1.79	0.02
Costa Rica	96.1	93.5	91.3	91.4	-0.31	-0.68	-0.48	0.02
Cuba			89.5	93.9[a]				0.96
Dom. Rep.	93.1	82.4	75.4[d]	96.9[b]	0.29	-3.01	-2.20	6.47
Ecuador	78.4		94.0	90.7	0.91			-0.59
El Salvador	93.7	91.7	94.1	87.3[b]	-0.50	-0.54	0.52	-1.86
Guatemala	88.3	91.7	95.5[c]	97.8[b]	0.73	0.95	0.68	0.60
Haiti		88.7	80.1	99.8[a]			-2.02	4.50
Honduras	95.3		91.0	97.7	0.16			1.19
Mexico	89.9	89.5	91.7	92.7	0.19	-0.11	0.49	0.18
Nicaragua	98.7	79.8	87.5	99.3	0.04	-5.18	1.86	2.13
Panama	92.3	93.6	93.7	97.6	0.35	0.35	0.02	0.68
Paraguay	88.8			81.4[a]	-0.58			
Peru	96.7	96.4	94.4	96.3[a]	-0.03	-0.08	-0.42	0.40
Uruguay			94.7	94.6				-0.02
Venezuela	94.3	95.8	95.1	95.9[b]	0.12	0.40	-0.15	0.21

[a]: Figures are for 1985
[b]: Figures are for 1984
[c]: Figures are for 1981
[d]: Figures are for 1976
Source: *Statistical Yearbook*, Unesco. Several Issues.

Having seen that a higher percentage of funds goes to recurrent expenditures, the next question is expenditures in what? The following tables explore the changes in the distribution of recurrent expenditures among the three principal categories of spending: salaries, teaching materials and scholarships. Table 10 summarizes those changes in the countries for which the data are available. There is no uniform pattern in the changes in the percentage of current expenditures for teacher salaries, between 1980 and 1986; while in some countries there is growth, in others there is decline in the levels of this figure. The picture is more consistent for what happens to the percentage of expenditures for teaching materials. In all countries except Ecuador and Venezuela there

are significant reductions, to the point that by 1986 most countries spend less than 1% of their current budget in teaching materials; the rate of decline of this indicator averages about 10% per year. There are again variations with regard to the portion of the current budget for scholarships. Of the eight countries for which we have data half show reductions and the other half show increases in this item. The levels of variability are restricted since scholarships is a very small portion of the current budget already in 1980.

Table 10. Changes in the distribution of current expenditures

Country	Teacher salaries 1980	1986	Annual growth (%)	Teaching mats. 1980	1986	Annual growth (%)	Scholarships 1980	1986	Annual growth (%)
Argentina		57.1		7.9	0.5	-36.87	5.0	1.7	
Bolivia	75.7	93.3	11.02				0.2	0.1	
Brazil									
Chile	76.8			5.1					
Colombia									
Costa Rica	50.2	53.5	1.07						
Cuba	38.8	50.5[a]	5.41	6.6	0.8[a]	-34.43	2.5	1.0[a]	-16.74
Dom. Rep.	62.2	62.9	0.19				2.0	0.9	-12.46
Ecuador		62.3		0.8	2.6	21.71	0.2	0.0	
Guatemala	69.1	70.4[b]	0.47	0.5	0.3[b]	-11.99	0.6	0.7[b]	3.93
Haiti	66.9	52.2[a]	-4.84	2.2	1.3[a]	-9.99	1.2	1.9[a]	9.63
Honduras	71.1	60.2[c]	-7.98	2.6	1.3[c]	-29.29	1.6	1.3[c]	-9.86
Mexico	56.6	68.7	3.28		0.9		0.2	0.2	0.00
Nicaragua	69.7	52.3	-4.67	2.2	2.2	0.00	0.7	3.3	29.49
Panama	65.3	61.6	-0.97	1.8	0.9[a]	-12.94	3.8		
Peru	59.4	55.2[a]	-1.46	0.9	0.3[a]	-19.73			
Uruguay	56.9	44.7	-3.94	0.9	0.3	-16.73			
Venezuela	60.7	60.0[b]	-0.29	1.0	4.5[b]	45.65	7.4	4.5[b]	-11.69
			-0.21			-9.51			-0.96

[a]: Figures are for 1985
[b]: Figures are for 1984
[c]: Figures are for 1982
Source: *Statistical Yearbook*, Unesco. 1988.

Chapter 5

Changes in current educational expenditures by level

Tables 11 to 13 present the percentage of current expenditures by level of education. We can notice that there is no uniform pattern for all countries of the region. There are more countries where the relative levels of expenditures in primary education decline as from 1970 than countries where those levels increase; the number of countries where expenditures in primary education decline has increased in more recent years. Reciprocally, there are more countries where the relative levels of expenditures in higher education increase from 1970 than countries in which those levels decrease. Between 1970-86 eleven countries increased their percentage of expenditures for higher education, while this figure decreases in only five of them. Comparing the annual growth rates of primary versus higher education in 1980-86 for each country, we see that in ten countries primary education suffered more than higher education, while there were only five countries in which higher education suffered more than primary education.

Table 11. Percentage of expenditures for primary education

	Percentage expenditure				Annual growth (%)			
	1970	1975	1980	1986	70-75	75-80	80-86	70-86
Argentina	30.4	27.0	40.1	37.7[b]	-2.34	8.23	-1.53	1.55
Bolivia	62.1	62.5	58.9	71.9[c]	0.13	-1.18	10.49	1.23
Brazil	7.5	62.7	44.8	45.9[a]	52.91	-6.50	0.49	12.84
Chile		34.9	44.6	51.0[a]		2.72		
Colombia	36.5		44.4	39.2[a]		-2.46	0.48	
Costa Rica	51.2	37.2	28.0	37.8	-6.19	-5.52	5.13	-1.88
Cuba			24.4	20.7[a]			-3.24	
Dom. Rep.	41.1		36.8	44.4		3.18	0.48	
Ecuador	45.9		20.6	48.5		15.34	0.34	
El Salvador	57.9	57.5	61.9		-0.14	1.49		
Guatemala	55.2	51.3			-1.45			
Haiti	65.1	63.0	59.3	51.0[a]	-0.65	-1.20	-2.97	-1.61
Honduras	64.2		61.9	48.5		-3.98	-1.74	
Mexico	47.7	42.9	39.7	27.4	-2.10	-1.54	-5.99	-3.41
Nicaragua	57.9	55.1	44.7	37.8	-0.99	-4.10	-2.76	-2.63
Panama	38.9	39.1	46.3	40.7	0.10	3.44	-2.13	0.28
Paraguay	64.8			36.6[a]				-3.74
Peru	39.8	40.7	45.1	35.6[a]	0.45	2.07	-4.62	-0.74
Uruguay	45.1		48.4	36.5		-4.59	-1.31	
Venezuela	38.3	22.1	21.1	28.2[b]	-10.41	-0.92	7.52	-2.16

[a]: Figures are for 1985
[b]: Figures are for 1984
[c]: Figures are for 1982

Source: *Statistical Yearbook*, Unesco. Several years.

Table 12. Percentage of expenditures for secondary education

	Percentage expenditure				Annual growth (%)			
	1970	1975	1980	1986	70-75	75-80	80-86	70-86
Argentina	30.3	30.5	25.6	27.4[b]	0.13	-3.44	1.71	-0.72
Bolivia	12.8	7.3	11.4	13.0[c]	-10.62	9.32	6.79	0.13
Brazil	11.1		7.1	7.7[a]			1.64	-2.41
Chile		13.5	18.0	19.5[a]			1.61	
Colombia	16.9		27.0	30.8[a]			2.67	4.08
Costa Rica	18.9	22.4	21.5	21.6	3.46	-0.82	0.08	0.84
Cuba			40.8	42.0[c]			0.58	
Dom. Rep.	18.3		22.9	18.4			-3.58	0.03
Ecuador	41.0		20.6	33.6			8.50	-1.24
El Salvador	11.8	6.6	6.2		-10.97	-1.24		
Guatemala	16.9	15.5			-1.71			
Haiti	17.8	17.5	20.4	18.1[a]	-0.34	3.11	-2.36	0.11
Honduras	15.4		17.9	17.1			-0.76	0.66
Mexico	27.2	31.1	18.8	16.2	2.72	-9.58	-2.45	-3.19
Nicaragua	17.6	22.4	25.1	18.3	4.94	2.30	-5.13	0.24
Panama	18.7	23.5	22.0	25.3	4.68	-1.31	2.36	1.91
Paraguay	17.1			29.7[a]				3.75
Peru	20.8	20.8	19.9	20.5[a]	0.00	-0.88	0.60	-0.10
Uruguay	30.4		33.2	27.8			-2.92	-0.56
Venezuela	20.6	18.4	15.0	6.5[b]	-2.23	-4.00	-18.87	-7.91

[a]: Figures are for 1985
[b]: Figures are for 1984
[c]: Figures are for 1982

Source: *Statistical Yearbook*, Unesco. Several years.

Table 13. Percentage of expenditures for higher education

	Percentage expenditure				Annual growth (%)			
	1970	1975	1980	1986	70-75	75-80	80-86	70-86
Argentina	21.0	30.2	22.7	19.2[b]	7.54	-5.55	-4.10	-0.64
Bolivia	10.9	15.0	17.1	3.2[c]	6.59	2.66	-56.74	-9.71
Brazil	59.3		18.9	19.6[a]			0.73	-7.11
Chile		25.2	33.2	20.3[a]			-9.37	
Colombia	23.9		24.1	22.2[a]			-1.63	-0.49
Costa Rica	10.5	24.4	26.1	39.7	18.37	1.36	7.24	8.67
Cuba			6.9	12.9[a]			13.33	
Dom. Rep.	20.7		23.9	19.7			-3.17	-0.31
Ecuador	9.9	15.6		15.2				2.72
El Salvador	21.4	23.7	14.2		2.06	-9.74		
Guatemala	13.1	19.9			8.72			
Haiti	9.1	11.4	9.6	10.8[a]	4.61	-3.38	2.38	1.15
Honduras	12.2		19.3	20.7			1.17	3.36
Mexico	10.4	12.6	26.5	31.8	3.91	16.03	3.09	7.24
Nicaragua	10.0	16.5	10.5	21.2	10.53	-8.64	12.42	4.81
Panama	10.8	12.6	13.4	21.6	3.13	1.24	8.28	4.43
Paraguay	16.5			23.8[a]				2.47
Peru	1.9	1.8	3.1	2.7[a]	-1.08	11.49	-2.73	2.37
Uruguay	19.0		16.1	24.2			7.03	1.52
Venezuela	25.5	37.0	39.2	43.4[b]	7.73	1.16	2.58	3.87

[a]: Figures are for 1985
[b]: Figures are for 1984
[c]: Figures are for 1982

Source: *Statistical Yearbook*, Unesco. Several years.

Chapter 6

A case study of the impact of the adjustment in education in Costa Rica

The main reason for choosing Costa Rica as a case study to illustrate the dynamics of the adjustment discussed in this document is that this is a highly indebted country, but also one where education has been a high priority in the development agenda of all governments.

With a population of 2.6 million, in 1987, and a per capita income of US$ 1610, Costa Rica stands as a case in Latin America of continued government commitment to education. An analysis of the history of education in Costa Rica concludes that the state has traditionally considered education as a mechanism of consensus formation and hence "a cornerstone of the political and ideological option of consensual model assumed by our statesmen" [Fischel 1989, p.34]. In 1868 a law of free and compulsory primary education was passed. Since 1953 Costa Rica has had democratic governments with a strong social democratic agenda[1]. A telling symbol of the government's

1. The Costa Rican social democracy, represented by the Partido de Liberación Nacional, has virtually controlled the legislature and alternated in the presidency with a coalition of smaller parties with neo-liberal views. The platform of the PLN assigns the state the role of main agent in the promotion of development and general welfare; they encourage heavy state intervention in the economy and an aggressive social welfare policy [Denton 1985, p. 490].

commitment to education is found in the anecdote that when the army was abolished, in 1949, the keys to the main military barracks were given to the Minister of Education [Denton 1984, p.497].

This long-term support of education has produced one of the highest literacy rates in the region (93%) and high participation rates at all education levels. Already in 1965 gross enrolment in primary education was 100%, in secondary education it increased from 24% in 1965 to 42% in 1986, and in higher education it increased from 6% in 1965 to 24% in 1986 [World Bank 1989a, p.221].

The income distribution in Costa Rica is also better than in most Latin American countries as illustrated in Table 12. The 20% of the households with less income, receive 3.3% of the total income (this is higher than any other country for which we have data, with the exception of Argentina and El Salvador). The 20% of the households receiving more income represent 39.5% of the total income (this is lower than all other countries except Argentina, El Salvador and Venezuela).

Table 14. Percentage share of household income, by percentile groups of households.

Country	Year	Lowest 20%	Highest 20%
Costa Rica	1971	3.3	39.5
Argentina	1970	4.4	35.2
Brazil	1972	2.0	50.6
El Salvador	1976	5.5	29.5
Panama	1973	2.0	44.2
Mexico	1977	2.9	40.6
Peru	1972	1.9	42.9
Venezuela	1970	3.0	35.7

Source: World Bank. *World Development Report*. 1989, pp. 222-223.

Precisely because of the sustained importance of education, at all levels, in the agenda of all Costa Rican governments, this is a good case to examine the impact of the debt crisis and the adjustment in government financing of education.

1. The economic crisis in Costa Rica and the pressure to reduce public expenditure

The immediate origins of the Costa Rican crisis can be found in the plummeting of coffee prices (Costa Rica's primary commodity export) in 1978, the oil shock of 1979, and the deterioration in demand of the Central American Common Market for manufactures at the end of the 1970s due to political upheaval in the region [IDB 1982, p.229]. The public foreign debt ballooned as a way to compensate these deteriorations in terms of trade. In addition, inflationary pressures and negative interest rates resulted in the flight of capital. International reserves were depleted by 1980 and in August 1981 the government stopped servicing the debt. Since then, the government has adopted adjustment programmes linked to negotiations of debt repayments with private creditors and with the International Monetary Fund (IMF). These programmes have included, amongst other targets, reducing the budget deficit. For instance, in 1983:

> "The Government's economic policy was based on a stabilization program that formed part of the stand-by agreement with the International Monetary Fund (IMF). The agreement was signed in December, 1982, and the resources were fully disbursed by the end of 1983. This program set a number of goals for the fiscal area. One goal was to lower the public sector's global deficit to 4.5 percent [IDB 1984, p. 271].

The pressure to reduce government expenditures was reinforced by subsequent stand-by agreements with the IMF (in 1985 and 1987) which were:

> "a precondition to rescheduling of the external debt and to obtaining additional financial resources from the World Bank and from the international private banking community" [IDB 1986, pp.246-247].

2. *Changes in the priority of education relative to other areas of government expenditure*

The adjustment changed the priority of education relative to other sectors of government expenditure.

Table 15 shows that total government expenditures (of the central government) declined in real terms in 1981 and 1982, regaining their level in subsequent years. Total government expenditures grew, on average, 4% per year between 1980 and 1986.

During the two years when government expenditures were cut (1981 and 1982), all sectors suffered net reductions (with the exception of social security in 1981), but those losses were offset by increases in the following years. By 1986, most sectors were spending more than in 1980 in real terms, with the exception of education, health and economic services. In 1986, educational expenditures were 83% and health expenditures were 85% of what they were in 1980, and economic services cost 85% of what they did in 1980. Thus, educational expenditures fell by an average of 3% per year, health expenditures by an average of 2.7% per year and costs of economic services fell by an average of 3% per year. All other sectors of government expenditures increased, most noticeably in social security and housing. In 1986, general public expenditures were 40% higher than in 1980, defence expenditures 8% higher (a paradox in a country without army), social security expenditures increased 3.4 times, housing expenditures 4.25 times, recreation expenditures doubled. The increase in housing expenditures (seemingly at the expense of education and health) suggest a change in the perceived importance of this sector by the politicians, presidential candidate Oscar Arias campaigned promising a new emphasis in public housing: "Taking into consideration that our country had reached important achievements in the areas of public health and education, Arias believed it was a good time to give preference to other needs and demands of the Costa Rican society" [Fischel 1989, p.32].

Table 15. Total expenditures of the central government in constant millions of colones (1980) and annual growth in expenditures by sector 1980-86

Year	Total	Gener.	Defen.	Educ.	Health	SocSec	Housng	Recr.	Econ.	Other
1978	9032	1007	259	2321	2295	729	180	196	1295	930
1979	10154	912	277	2517	2539	776	262	193	1872	974
1980	10369	922	265	2549	2980	736	229	212	1900	1157
1981	8749	793	231	2070	2602	899	204	144	1330	921
1982	6886	706	203	1555	2256	772	201	117	1029	798
1983	8822	775	268	1709	1984	1275	235	451	1778	907
1984	9614	904	295	1768	2358	1076	558	251	1819	1053
1985	9691	932	270	1817	2222	1409	181	228	1678	1109
1986	13083	1290	286	2122	2530	2516	974	428	1605	1516
Annual growth in expenditures by sector in constant terms										
1979	12.43	-9.39	6.96	8.41	10.63	6.45	45.34	-1.50	44.60	4.65
1980	2.11	1.10	-4.25	1.27	17.37	-5.16	-12.59	10.17	1.48	18.82
1981	-15.62	-14.03	-12.84	-18.77	-12.69	22.13	-11.13	-32.31	-29.99	-20.38
1982	-21.29	-10.90	-12.27	-24.91	-13.30	-14.14	-1.21	-18.56	-22.62	-13.42
1983	28.12	9.64	32.38	9.94	-12.06	65.18	17.02	285.38	72.80	13.74
1984	8.98	16.64	9.76	3.45	18.88	-15.59	137.17	-44.35	2.29	16.08
1985	0.80	3.19	-8.29	2.74	-5.75	30.91	-67.62	-9.36	-7.71	5.31
1986	35.00	38.37	6.03	16.82	13.85	78.62	439.19	88.04	-4.36	36.72
Compound growth 1980 to 1986 (percentage)										
	3.95	5.75	1.30	-3.00	-2.69	22.74	27.29	12.38	-2.77	4.61
Ratio of expenditures in 1986 to 1980										
	1.26	1.40	1.08	0.83	0.85	3.42	4.25	2.01	0.85	1.31

Source: IMF. *Government Finance Statistics Yearbook 1989.*

3. *Changes in the structure of education expenditures and other distortions of the adjustment*

The impact of the adjustment was larger in the lower levels of the system. Educational expenditures for basic education declined in real terms at an average of 4.78% per year between 1980 and 1987, while for higher education the decline was only 0.25% per year on average during the same period.

As a percentage of the total education budget, expenditures in basic education declined from 63% in 1980 to 54% in 1987, while expenditures in higher education increased from 34% to 40%.

Table 16. Educational expenditures by level of education in constant (1978) colones

	1980	1982	1984	1986	1987	Annual growth
Basic	1189	533	633	825	847	-4.78%
INA	69	34	79	107	103	
Higher	639	382	480	628	628	-0.25%
Total	1897	949	1192	1560	1578	
Percentage spent by level of education						
Basic	62.68	56.16	53.10	52.88	53.68	
INA	3.64	3.58	6.63	6.86	6.53	
Higher	33.68	40.25	40.27	40.26	39.80	

Source: *Memorias de la Contraloría General de la República.* Costa Rica.

Although real expenditures per student decreased in all levels of education, this decline was sharper in primary education (averaging 7% per year) and smaller in higher education (averaging 2% per year). In 1986, per student expenditures in primary education were 65% of their levels in 1980, for secondary education they were 74% in general secondary and 77% in technical, in higher education they were 90% of their 1980 levels.

Table 17. Real expenditures per student by level (1978 colones)

	1980	1986	Annual growth	Ratio 86 to 80
Primary	1629	1064	-6.85%	0.65
Secondary general	2218	1642	-4.89%	0.74
Secondary technical	4055	3122	-4.26%	0.77
Higher	12629	11375	-1.73%	0.90

Source: World Bank. *Costa Rica. Public Expenditure Investment Review.* 1989.

Average teacher salaries suffered net reductions between 1980 and 1986 in primary and secondary education. While salaries of primary school teachers increased on average 10.27% per year between 1975 and 1980, they fell by 6.71% per year between 1980 and 1986. In 1986, salaries of primary school teachers were 66% of their 1980 levels. "By comparison, in the rest of the economy, real wages, after a 30% decline in 1981-82, have recovered by the end of 1987 their pre-recession levels" [World Bank 1989b, p. 7].

The minimum legal wage was 15% higher in real terms in 1985 than in 1980 and 55% than in 1976 [Vedova 1986, Table 16].

Table 18. Average salary of teachers (1975 colones)

Year	Primary education salary	growth	Sec. general salary	growth	Sec. technical salary	growth
1975	1840		2398		2361	
1980	3000	10.27%	3042	4.87%	2945	4.52%
1986	1978	-6.71%	1804	-8.34%	1761	-8.21%
Ratio 1986-80	0.66		0.59		0.60	

Source: Sanguinetty, J. *La educación general en Costa Rica*. 1988, p. 18.

The impact of the crisis was felt disproportionately in infrastructure. The proportion of the budget of the Ministry of Education for current expenditures increased from 77% in 1975, to 96% in 1980 to 99% in 1987 [World Bank 1989b, p.6].

These distortions in educational finance during the adjustment, together with other effects of the adjustment on the larger context where students live (i.e. reduced income in their households, which could increase the opportunity cost of schooling and of other private contributions of parents to the education of their children) lead to losses in efficiency and equity (to the extent those losses affected disproportionately marginalized groups). For instance, Table 19 shows that between 1980 and 1986 the number of teachers in primary and secondary education decreased at an annual average of 1% and 1.7%, respectively, while for higher education teachers increased at an average of 2.93% per year. The number of students in secondary education decreased 2.79% per year on average, while this could reflect actual

decreases in the number of children in this age-cohort during those years, it may also reflect that more youngsters were entering the labour force to contribute to household income. From 1979 to 1982 "non-heads of household increased their labour force participation from 57.3% to 63.5% for men and from 23.6% to 26.7% for women. As a result, in 1981 and 1982, twice as many persons in the labour force were seeking work for the first time as was the case in 1979 and 1980" [Fields 1985, quoted in Vedova 1986, p.7].

Table 19. Number of institutions, teachers and students by level in Costa Rica 1975-1986

Year	Preschool			Primary			Secondary		Higher	
	sch.	teach.	stdnt.	sch.	teach.	stdnt.	teach.	stdnt.	teach.	stdnt.
1975	318	500	15608	2770	12429	361303	4929	111538		32794
1980	370	673	21857	2936	12596	348674	7157	135830	4382	47340
1981	424	739	23969	2944	10556	348616	6955	133909	4317	
1982	450	752	27584	2971	10312	342373	7307	130337	4343	
1983	483	841	31008	2993	10316	343800	710	122836		47234
1984	492		29220	3035		350658		117412		47305
1985	536	1302	36356	3091	11526	362877		112531		50047
1986	568	1184	38705	3107	11785	380384	6469	114655	5211	50033
Annual compound growth (percentage)										
75-80	3.08	6.12	6.97	1.17	0.27	-0.71	7.74	4.02		7.62
80-81	14.59	9.81	9.66	0.27	-16.20	-0.02	-2.82	-1.41	-1.48	
81-82	6.13	1.76	15.08	0.92	-2.31	-1.79	5.06	-2.67	0.60	
82-83	7.33	11.84	12.41	0.74	0.04	0.42	-2.74	-5.76		
83-84	1.86		-5.77	1.40		1.99	-4.42		0.15	
84-85	8.94		24.42	1.85	5.70	3.48		-4.16		5.80
85-86	5.97	-9.06	6.46	0.52	2.25	4.82	-3.09	1.89	4.66	-0.03
80-86	7.40	9.87	9.99	0.95	-1.10	1.46	-1.67	-2.79	2.93	0.93

Source: Unesco. *Statistical Yearbook*. Several Years.

There is also evidence of declines in efficiency rates during the adjustment: in 1980, 90% of the students of primary education, on average, where admitted to the next grade, whereas in 1986 this figure fell to 85.6%. For secondary education, the decline was from 66.2% to

54.4% [World Bank 1989b, p. 8]. Only 66% of children entering primary school will reach the end of 6th grade. Only 41% will do it without repeating [Ibid].

4. *The crisis and attempts to reform education*

The financial crisis in the education sector (and in the public sector in general) has reduced support for educational reforms justified on long-term gains. The long-term has been sacrificed for the short-term. In dialectical relationship, contracting fiscal resources have accompanied diminished political support for the sector, perhaps because with diminishing resources the consequences of reforms will show clear winners and net losers whereas with growing resources it was possible to alter relative shares (i.e. between levels of education) without making any group worse off in absolute terms. Avoiding the education issue is thus a way for politicians to avoid conflict (also since the Ministry of Education is one of the largest organizations of the public sector and hence conflicts there would have widespread repercussions). Another non-exclusive possibility is that there are larger marginal political benefits in sectors other than education (housing, for instance in the case of Costa Rica) and in the face of declining resources it is more cost-effective (in political terms) for legislators and members of the executive, to concentrate on those. The possible long-term higher returns of investment in schooling are irrelevant here since the main objective of policy élites is to stay in power which is an incentive to design policies which win support from coalitions.[2]

Several educational reforms have been attempted in the last 10 years in Costa Rica in an effort to decentralize decision-making. The 1978-82 administration attempted an education reform that would decentralize planning and management. This reform was opposed by teacher unions, education bureaucrats, press, catholic church, opposition parties [Fischel 1989, p.23]. At the same time the Teachers Union proposed a similar reform to raise teachers' salaries, but this bill was also turned down by Congress [Ibid, p.24]. During the next administration (1982-86), the PLN attempted another reform which was also not

2. For an insightful discussion of the political economy of public policy see: Grindle, 1989.

approved by Congress: "This was to reflect the lack of political support that educational matters were already receiving" [Ibid, p.25]. The Arias administration (1986-90) tried a new education reform to modernize the education system which was again voted down by Congress [Ibid, p.26].

Chapter 7

Conclusions

This study found evidence supporting the hypothesis that the priority given education by Latin American governments has diminished during the current economic crisis, discussed here as the "debt crisis." It is important to keep in mind that debt levels in the 1980s turned out to be very high, not only in absolute terms, but primarily relative to the export earnings of Latin America. Also the "crisis" was the result not only of the relative debt levels themselves, but of the interaction between those levels and an international financial scenario that reduced the supply and increased the conditionality of additional credit. In this sense, the "impact of the debt crisis" is really shorthand for a more complex set of issues involving structural and short-term circumstances that limit the ability of Latin America to service its debt out of its own resources.

The increases in debt levels in Latin America are associated with decreases in levels of educational expenditures. Declines in the percentage of government expenditures for education are significantly associated with increases in debt in most countries, although in some cases this means that education expenditures fail to keep up with growth of total government expenditures, rather than decline in absolute terms.

Of particular importance in this association between external debt and education is the role of IMF conditionality in the 1980s. This is supported by a related study in which the socio-political dynamics of the adjustment are examined in six countries [Reimers 1988, 1990b]. This conditionality, along with the climate of credit markets in the 1980s,

with private creditors demanding an IMF "seal of approval" of the country's adjustment policies before supplying any additional credit, is at the heart of the process by which debt was found to influence education.

In most countries the "impact of the debt" on education is, then, a phenomenon of the 1980s.

The type of adjustment policies implemented in the 1980s in many countries produced a "threshold" in the relationship between debt and educational expenditures; that threshold differentiates a change in the structure of the relationship, resulting in the negative impact of further increases in debt on the rate of growth of educational expenditures in the 1980s.

Before that turning point in the 1980s, on the other hand, in many countries debt did not have a negative impact on education, and in some cases debt and education were positively related. This is consistent with the notion that overall government expenditures expanded, financed by foreign debt. Credit-led development reduced the need for governments to make allocational choices between sectors or groups in the society; yet the limits on the ability to continue financing government deficits through credit put pressure on the governments to *choose* between sectors. In this sense it is important to highlight that in facing IMF pressures to balance fiscal deficits, the ultimate choices of which sectors should be cut are choices of the governments themselves.

The debt and the IMF stabilization requirements may have changed the political rules by which Latin American governments balance the interests of different groups. Wiarda and Kline have described the Latin American system as essentially accommodationist and co-optive of new groups:

> "In order to provide more pieces of pie for the newer groups, without depriving any of the older groups of their share, the pie must be steadily enlarged. During the 1930s, 1940s, 1950s, and early 1960s, precisely the heyday of the system here described, economic growth occurred at steady if seldom spectacular rates. With their economies expanding the Latin American systems could afford to give more benefits to labour, to peasants, to all groups in the system. The model of the political process described here, implying gradual assimilation of new groups, greater benefits, and rising living standards, was predicated on continued steady growth

> rates and hence more and more funds to buy off revolutionary challengers. But what if, as at present, the Latin American nations should face a situation where the pie would no longer be an expanding one but a stagnant or, in the case of some nations, a contracting one? Then how long could the political model outlined here --a relatively peaceful, stable, consensual, and accommodative one-- be expected to last? These are the questions the Latin American nations must now face up to". [Wiarda and Kline 1985, pp.111-112]

A study of the effects of public expenditures in Latin America on poverty concludes that although the impressive expansion of expenditures before the debt crisis benefited the poor, the main beneficiaries were the middle classes [Pfefferman 1987, p.14]. A decade of experience suggests also that adjustment will not be a short-term process and therefore its implications on the most vulnerable groups require attention of policy makers:

> "It has become clear that the poverty aspects of adjustment are not simply a short-term problem. Adjustment programmes have taken longer and proved far more arduous than originally expected [...] adjustment programmes must be designed to protect and assist the poor [...] Constrained public social expenditures should be redirected from the better off to the poor". [Zuckerman 1989, p.20]

The immediate implication of this impact of the debt on education is a slowdown in the development of education in each country. Given the continued population growth in Latin America, and the fact that the quantitative expansion of the last 20 years had a qualitative trade off, the implication is the same: if all other things remain the same (ceteris paribus) the external debt has "frozen" the ability of the educational system to continue expanding the supply of education, in quantitative or qualitative terms. For a discussion of the importance of education expenditures for quality, see Fuller 1985 and Fuller et. al. 1986.

It is also important to recognize that the impact of the adjustment goes beyond effects in government financing affecting households also. The crisis may increase the opportunity cost of sending a child to school

hence affecting demand for education. These effects can have a particular class bias to the extent the poor suffer more the impact of the adjustment.

For example, we saw in Chapter 6 that in Costa Rica between 1980 and 1986 the number of students in secondary education decreased 2.79% per year on average, while this could reflect actual decreases in the number of children in this age-cohort during those years, it may also reflect that more youngsters were entering the labour force to contribute to household income. From 1979 to 1982 "non-heads of household increased their labour force participation from 57.3% to 63.5% for men and from 23.6% to 26.7% for women. As a result, in 1981 and 1982, twice as many persons in the labour force were seeking work for the first time as was the case in 1979 and 1980" [Fields 1985, quoted in Vedova 1986, p. 7]

In addition to reductions in output which could be expected from reductions in fiscal resources, there may be an additional decline stemming from changes in the mix of inputs which can lead to reduced technical efficiency. Cuts implemented with a short-term focus on political expediency (cut what is easiest) lead to deterioration of school buildings, lack of teaching materials and support for students and to disporportionate cuts for those levels of education with less ability to oppose them (e.g. primary education, quality of education in rural areas).

The impact of the debt crisis on government educational expenditures operates at two levels: one is direct by reducing availability of foreign currency for the educational system; the other is indirect, through the adjustment process which results in reduced *real* educational budgets.

The direct impact of the adjustment on the educational inputs which are purchased with foreign currency should not be underestimated. Foreign currency is used to purchase very specialized inputs for the delivery of education. They can range from advice by international consultants to specialized equipment, training, and journals, or they can provide the resources for key members of the educational bureaucracy to maintain their contact with international networks[1]. Since these inputs are often the least visible part of an education delivery system, it may

1. For an account of the importance of international networks for educational policy see Psacharopoulos (1980).

seem that their absence will not have significant effects; yet their effects can be just as important as those resulting from restrictions placed on other more visible inputs. A good example is science laboratories at higher levels virtually paralyzed due to lack of material or equipment. Or libraries may have to cancel their subscriptions to international journals because the cost of foreign currency is beyond their budget allocations. Educational researchers or policy makers may have, by necessity, to cut their professional contacts with colleagues in other parts of the world because they can no longer participate in institutional exchanges, attend conferences or even read what is published elsewhere.

The mechanics of the adjustment, however, are mostly through educational budgets failing to keep up with the inflation rate. Several studies have shown that one of the destabilizing factors of debt in Latin America is hyperinflation [Dornbusch 1987, Mallon 1988, Sachs 1986]. As a result of inflation real educational expenditures decrease, while nominal educational expenditures increase. In the short run, current levels of education supply need not be affected to the extent that there are no layoffs; but the impact may soon be felt in the form of limits on new hirings and in the quality of education that teacher salaries of reduced purchasing power will buy[2]. For example, in Mexico salaries for primary school teachers decreased in real terms by 34% between 1983 and 1988, and salaries for primary school headteachers decreased by 40% in the same period; the reductions in salary are larger for teachers with higher levels of education [Prawda 1989, p. 197]. The same is illustrated in the case of Costa Rica discussed in Chapter 6, during the adjustment, teacher salaries decreased in real terms by more than the minimum legal wage. Even if teachers of the same quality continue to be attracted by the reduced salaries (because of lack of more attractive options due to the recession), their need to supplement earnings with additional jobs may limit the quality of their teaching. In a review of the policy implications of the IEA studies, Husén concludes that time is crucial to promote learning, including teacher preparation of lessons as

2. Lewin (1986) has suggested three mechanisms by which reductions in recurrent costs could affect quality. First, the decline of teacher salaries in real terms, which would influence morale and skills of those attracted to the profession. Second, an increase in the hiring of young and temporary teachers. Third, an increase in pupil-teacher ratios, reducing the demand for teachers [Lewin 1986, p.225].

one of such time-related variables [Husén 1987, p.40]. Another impact of the adjustment analyzed in this paper are reductions in capital investments in education and in the 'soft' portions of the education budgets, that is, those unprotected by contractual obligations with teacher unions. The analysis of the change in the structure of educational expenditures suggests that higher percentages of the budget are going to recurrent expenditures. Among the countries examined, there is no uniform pattern in the changes in the percentage going to teacher salaries and scholarships. There are significant reductions in the percentage of current expenditures for teaching materials.

The evidence examined seems to suggest that basic education may be less protected from the adjustment process than higher education. This is not surprising given the trends of educational development in Latin America in the last 20 years, but it is perturbing given the uneven income distribution structure of those societies.

I conclude that the adjustment programmes implemented to respond to the 'debt crisis' conform a new scenario for educational planning and management. Education systems could respond in two ways to this new scenario: 1) quick-fix adjustment and 2) planned reform. I propose that, of these two ways, planned reform has a better chance to preserve efficiency and equity in the provision of education. However, the changes in the structure of expenditures analyzed in this paper suggest that education systems have responded with quick fixes rather than with reforms.

Quick-fix responses are the antithesis of planned change. They lead to adjustments that are more responsive to the interests of the most vocal than to considerations about efficiency or equity.

Drawing from the work of Hewton (1986) in England, I propose that the recognition of this new scenario of diminished government resources for education and of the distortions resulting from quick-fix adjustment calls for major reforms in educational policy.

Analyzing the impact of reductions in education expenditures in England, Hewton (1986) advances the notion of 'cultures of choice', referring to the organizational climate in which educational policy decisions are made. He suggests that reductions in financial resources require moving from a 'crisis culture' (in which the sense of direction is lost) to a 'culture of cuts' (which attempts to control the decline associated with reduced levels of expenditures).

> "A cuts culture is not associated with termination...nor is it related to major axeing of parts of an organization ... Rather, it is a culture which is linked to extended periods of marginal contraction. In some respects it might be likened to a crisis culture except that uncertainty is no longer accompanied by very short decision time. Crises may still intrude into the cuts culture, yet, overall, there is time for reflection, review, evaluation and negotiation. The future may not look bright, but at least there is the opportunity to prepare for it" [Hewton 1986, p.127].

Hewton proposes that the emergence of a cuts culture will proceed in a three-staged process of response in local bodies of educational decision-making: 1) defensiveness (and denial of the problem), 2) pragmatic adjustment (cut what you can); and 3) reform, where policy-makers realize that short-term adjustment has meant undesired sacrifices in equity or efficiency [Hewton 1986, p.128-143].

> "To summarize the main points relating to the emerging cuts culture, it seems that, with a growing certainty of uncertainty, authorities have the opportunity to plan for their contraction in a much more positive way than in the crisis culture. Their task, however, is a difficult one, and the culture faces conflict brought about by the opposing pulls of those seeking to defend the status quo and those seeking more radical reforms. In between, trying to smooth the path towards decline, are the pragmatists who themselves are torn between preserving and changing -but 'somebody has to do the job'. In one sense the cuts culture might seem to function more 'effectively' if the reformers were to gain greater power than the defenders. If this happens various tools of analysis will be used to re-define goals and procedures and to question long-established professional norms and standards.' [Hewton 1986, p. 143].

The adjustment programmes examined here, with their consequent pressures to reduce government expenditures, have proven to be long enough to require moving from a 'crisis culture' to a culture of reforms.

The debt crisis has changed the scenario in which education policy decisions are made. García has characterized this as a reduction in the negotiating power of the education sector vis-à-vis other sectors [Garcia 1987]. This change has led to a decline in the fiscal and political support for education. It has also led to distortions in the distribution of expenditures inside the education sector. The cuts seem to have been implemented according to criteria of short term political feasibility to the detriment of long term efficiency and equity.

The impact of the adjustment has been disproportionate in the lower levels of education, in non-recurrent expenditures and in non-salary items. Long-term increases in inequality will result from the impact in basic education. A loss of internal effectiveness will result from the change in the mix of inputs: teachers without teaching materials, dilapidated buildings, students without scholarships, lack of supervision and training for teachers.

These changes can be better understood from the standpoint of political economy than from the point of view of straight economic rationality.

> "In its more state-centric applications, the new political economy has sought to provide insight into the behavior of policy elites. It asserts that (elected) political leaders want to stay in power; they will maximize their chances of achieving this end by using policy resources to reward supporters or potential supporters." [Grindle 1989, p.27].

A larger question is whether this new financial scenario is compatible with the consensual political style illustrated by Costa Rica. Consensus is easier where reforms resulting in changes in distribution of resources don't make anybody worse off in absolute terms (for instance when the emphasis in higher education means a faster rate of growth of resources for that sector but no net losses for other sectors). Declining resources are likely to increase political conflict. When resources are limited any allocative decision requires an equity decision [Thurow 1980, p. 17]. If, however, power among groups is not evenly distributed, allocations may follow the interest of the more powerful instead of equity considerations. When economic policy requires losses, those will be absorbed by the groups with less power rather than by the whole

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population [Thurow 1980, p. 12]. The observed changes in education in Latin America in this era of fiscal decline are consistent with this notion. It will not be long before the distortions analyzed here exacerbate the existing gaps in educational opportunity for different groups of the society[3]. Presumably the net losers of these adjustments will try to resist them.

If conflict is more evident when the State has to distribute decline instead of growth, the question is: whose interests will the State serve and how when distributing decline in educational funds?

Governments that choose to preserve the interest of the few at the expense of the interest of the many will have to do so at the expense of political legitimacy in democratic regimes. In a sense, the fiscal crisis will be a real test of the renewed democratic era Latin America is now entering.

3. For good discussions of educational inequalities in other Latin American countries see Mingat and Tan 1986, Plank 1989 and Prawda 1989.

Chapter 8

The need for a systemic reform of educational planning and management

The current Latin American debt crisis has proven to present important constraints to the development of education. Given that the short-term prospect for the debt crisis is not significant recovery, it is probable that these constraints will continue or increase their influence on education. This situation poses several paradoxes or bottlenecks for the development of Latin America. Unless policy changes are made, reductions in education might be one of the prices that the countries will pay for their public external debt. Such reductions would not facilitate the development of the skilled human resource base needed for the economic development that would help the region overcome the debt burden. As regards internal disparities, a policy of severe cuts in educational expenditures would have more impact on those people who need more, not less, government assistance in order to be able to afford education (namely those at the bottom of the income distribution pyramid). The *choice* to cut back to achieve fiscal balance *is not* the only policy option open to governments. The new constraints may stimulate new ways of thinking about and managing educational development. What is important is that governments continue to recognize the importance of education, as opposed to other sectors of government spending, as a long-term investment in development. Even though this is a discussion beyond the sphere of the empirical analysis of this particular study, the following recommendations are intended to stimulate discussion about the changes that may be necessary to solve

the above-mentioned paradoxes and bottlenecks and to maintain the levels of investment in education that will preserve long-term economic, social and political development.

These recommendations are understood to represent a dynamic system, so that policy changes in each of the following areas will interact with the other areas. Coombs and Hallak have emphasized the importance of this systemic view in designing changes to cope with reduced government finance for education:

> "To obtain a full and accurate picture of the reality they are concerned with, educational cost analysts must view an educational system as a system, that is, as a dynamic, organic whole composed of many interdependent parts (subsystems). They must also be constantly aware that any significant change in one part of the system, for example, a change in the proportions of its inputs or the intensity of their use, or a change in its technology, organization, or management, is likely to have substantial repercussions on other parts of the system, and almost certainly on its future costs and efficiency. By the same token, if any important component of the system is missing, the performance of the system as a whole is bound to suffer" [Coombs and Hallak 1987, p. 6].

A major area of short-term policy options lies outside the sphere of education, concerning more the domain of macro-economic and political choices. To the extent the Latin American countries manage to alleviate the debt crisis directly (e.g. by increasing their export earnings, rescheduling the debt in more favourable terms or negotiating effective debt reductions), this will diminish the constraints on the education sector. Given the experience of this decade, however, even with reductions of debt payments, it is unlikely that government expenditures will increase significantly. An analysis of the prospects of the debt for the international economic relations of Latin America concludes:

> "Latin American experience since the Mexican moratorium of August 1982 does not inspire much optimism" [Mallon 1987, p.1].

Hence planners and managers of education will have to take direct steps to respond to the crisis in order to maintain and increase the level of efficiency of the educational system under the current constraints. Those steps refer to policy initiatives in three domains of the educational system: inputs, management and outputs.

A set of policy responses to the debt crisis would try to maintain the level of financial inputs to the education system so that the output in terms of productivity of the labour force is maintained. Another set of options would readjust the mechanisms by which those inputs contribute to economic development so that the same or increased productivity can be obtained with reduced inputs. Two areas of actions to accomplish this include: 1) better management, and 2) redefinition of outputs in terms of programmes and levels that address more directly the needs of the economy. We will discuss briefly some of the issues and options pertinent to each of these three policy domains: educational inputs, educational management and educational outputs.

The propositions that follow stem from developments in the field of education independent of the debt crisis. In other words, while they are not options specifically tied to the debt, the debt crisis provides the timing and the sense of urgency that creates the need for change in the educational system, making these propositions attractive policy options. The framework within which these options have been developed is one that considers education a crucial component of long-term development, both in terms of its potential to contribute to productivity (efficiency) and to social and political development (equality).

These propositions are also developed for the specific context of education in Latin America, and may not be applicable to other regions of the world (i.e. Africa), facing similar financial constraints but different, with different features in their education system, labour markets, governments and society. The most recent IDB report on the economic and social progress in Latin America summarizes the educational scenario as follows:

> "Despite an impressive increase in primary school enrolment, illiteracy is still high among an important segment of the population in several countries. The adult literacy campaigns launched in almost all of them have had varying results. Also, although in most

of the countries almost all school-age children go to elementary school...most of them do not complete that level. The quantitative increase in elementary school enrolment has brought problems of educational quality. In Latin America a high percentage of the schools are incomplete, and repeat and drop-out rates are high. In addition to that, teacher training at the elementary and secondary levels is still inadequate." [Inter American Development Bank 1989, p. 57.]

1. *Policies to influence educational inputs: readjusting educational finance*

The issues of finance include who should be educated and for what programmes and levels, how will the funds be administered and who should pay [Levin 1985]. The first two points are addressed later in the sections on educational management and outputs; we will address here the sources of financing which refer to the question of who should pay to compensate for the observed negative impact of the debt.

The question of who should pay has implications of efficiency and equity. These implications are particularly important in societies where resources are so visibly limited that allocations to education require tradeoffs with other sectors, and allocations to each level of education imply tradeoffs with other levels. The question is how can additional resources be made available to redress the impact of the debt, while optimizing efficiency and equity. Three sources of finance will be examined: 1) the government, 2) the direct beneficiaries of education, and 3) private profit-making and non-profit organizations.

The government is an obvious source of finance since there are educational benefits beyond what individuals receive directly (externalities). To the extent those externalities match intended objectives of the government it is clear that the government should finance education.

It is also relatively clear that those who benefit directly from education should bear some cost in return for those benefits. Students and their families thus become a source of finance for the education they receive. As we will see this analysis needs to address differences in family income in order to serve equity goals.

Finally private organizations, both profit- and non-profit-making, can benefit by the provision of certain types of education to certain groups in the society if that provision meets their own institutional objectives. For example, industries may benefit from the additional productivity of a labour force receiving certain forms of training, and churches or other social groups may be satisfied by the provision of literacy to marginalized groups. Hence private organizations are another source of finance for the type of education they endorse.

What policies can mobilize additional resources from each of these three sources of finance?

Increased government efforts

The pressures for fiscal balance may develop a "culture of cuts" both at the level of the national cabinet as well as within the Ministry of Education.

> "A 'culture of cuts' will normally tend to take a short-term view and look for immediate savings, devaluing the long term because of the uncertainties involved; it will be conservative towards change and seek to minimize cost within the existing structure of provision to the point where this ceases to be viable; it may then encourage radical consideration of provision to transfer costs away from its own budget; it will value economy over improved access and equitable distribution of services; it may support the development of a "siege mentality" where the focus is on eking out existing resources rather than generating new ones from outside its immediate institutional environment" [Lewin 1987, pp.92-93].

Although governments facing resource constraints could be tempted to justify spending less on education for ideological reasons, this is an inadequate response to the crisis. Given other effects of the debt in the economy, reductions in financial inputs to education will mean losses in efficiency and equity, hence this is not the time for the State to reduce its responsibility for education.

Assuming all education is a form of investment, less State intervention may be granted if the private sector could finance education. However, the economic recession has also affected the households, it is

thus unrealistic to expect more private contributions even if the State cuts back. Given the negative incentives at the household level to send children to school, what is needed is *more* State intervention, not *less*, simply to maintain the current levels of educational efficiency. This is certainly a paradox --that the State contribution is needed more when it can afford it the least; but the *need* for that role should not be secondary to the apparent *ability* of the State to fulfill this responsibility. What is needed is an exploration of alternative options for the State to continue taking on the main responsibility of the State for the development of education in spite of the crisis.

Tedesco has developed in detail the reasons why the State should strengthen its role to respond effectively to the crisis in education:

> "It is evident that if decisions concerning the allocation of resources continue to depend on the relative influence of each pressure group, inequalities will not only be accentuated, they will be consolidated. The alternatives available to break down this 'market' logic are to be found in the mechanisms of *concertación* which enable the State to play its compensating role effectively, and in transferring more resources to the least priviledged sectors" [Tedesco 1989, p.305].

The paradox of less government effort in circumstances where households can afford less effort is compounded at some income levels and may not apply to other levels. Disaggregating the analysis by income level may help find solutions to this finance dilemma. Not all families have reached the levels of poverty that make them unable to finance their children's education. What may be necessary, for the sake of equity and balanced development, are redistributive measures that will break what is likely to develop as a vicious cycle of poverty in the absence of

government intervention[1]. Those redistributive measures could be taken both within the education sector and at a more general level. Within the education sector they mean charging user fees to those who can afford them, and then using those resources to finance educational expansion for those least able to afford it. User fees at higher levels to finance expansion of education (in quality and quantity) at lower levels (to reach marginalized groups) would be a progressive way to redress the current imbalances in educational finance. This change would need to be complemented by loans to university students from less favoured social backgrounds (which may have a certain grant component if recovery is less than 100% of the present value of the loan). Additional compensatory mechanisms could include partial loan forgiveness for university graduates who directly participated in the expansion projects at the basic levels or in other redistributive programmes (either after graduation or in their final years in college). At a more general level they mean additional taxes specifically earmarked for educational services. These options will be discussed later on.

In the area of government finance the option seems to be to maintain or increase the priority given to education as opposed to other sectors. An emphasis on long-term development in assigning sectoral allocations may counterbalance the pressures of a "culture of cuts." A shift from sectoral allocation to programme and project allocation would facilitate the use of evaluation and rational planning allocation models to assess the developmental impact of different types of investments.

The existing evidence documenting the contribution of education to individual and national development may help to build a rational case for the need for education, but at the cabinet level concerns over day-to-day political realities may outweigh academic analysis of long-term development[2].

1. The mechanics of this vicious cycle of poverty are simple. The poor become poorer because the recession has influenced them disproportionately (fewer jobs in the industrial sector, fewer government services available, reductions in real wages), and have little hope of their children escaping poverty through education, since child labour is vital to their subsistence.

2. A study of the education budget process in Mexico observed that information about equity, efficacy or relevance of education plays little role in allocations to education. Political criteria and bureaucratic politics have a larger impact in determining allocations [McGinn et al. 1983, p.260].

The assessment of political realities should take note, however, of whether the supply of education is meeting social demand at all levels and whether the balance of power among different interest groups creates inequalities that do not correspond to the political agenda of the government.

The options available to the central government include monitoring the impact of the adjustment process on education, particularly beyond the finance level onto process and outcome levels. That information could assist the government in the policy dialogue with different interest groups in order to generate support for education which could make sacrifices in other sectors more acceptable. The information could also make changes in the patterns of allocations by level more acceptable and facilitate the implementation of actions to increase private contributions to education.

This monitoring effort could be done in conjunction with international agencies such as Unesco in order to contribute to the understanding of this dimension of the debt problem in international fora. The developmental rationale of how the IMF adjustment programmes interact with government policy choices must be examined. Monitoring the impact of adjustment on education may be particularly suited to special Unesco commissions. In fact Unesco should engage actively in the discussion of the educational impact of the adjustment process, since that process may be "undoing" some of the development of the last 25 years to which Unesco has contributed. Other international assistance agencies that have invested heavily in education may also be interested in monitoring these effects, for similar reasons.

The government could also consider seeking foreign assistance directly for education, particularly as a means to provide for some of the crucial inputs directly purchased with foreign exchange as mentioned earlier. Given the economic constraints now facing traditional donors it is unlikely that aid will increase substantially; in fact it may decrease as a whole. Hence, from the perspective of donors, it is important that international assistance becomes more selective in order to have a critical impact. One option is to target the poorer countries which could not otherwise produce the resources for education. A second option is to maximize the development potential of international aid.

Two conditions are very important for this contribution to be developmental. The first is that foreign resources should not *substitute* for but rather supplement what the country can do itself. Even though the definition of what can be achieved by the country itself leaves room for interpretation, there are mechanisms to increase the likelihood that the aid will be supplemental and not substitutional (e.g. matching grants, grants with provisions for maintenance of level of effort). The second condition is that this type of aid should have no extra-educational conditions attached to it. This type of assistance should be negotiated with the direct input of educational decision-makers who would be responsible for administering it, and should therefore be totally within those decision-makers' areas of expertise. Educational aid with political strings, or as part of assistance packages with stabilization strings beyond the sphere of competence of the minister of education, is probably a bad idea, since those strings cannot be directly assessed as costs to be weighed against the potential benefits the aid would bring. The implications of these considerations for governments considering whether to solicit assistance is that this option should only be considered once other options for national finance have been exhausted. Still, there may be countries where the potential of national effort is so limited that borrowing abroad or asking for foreign grants may be the only alternative to maintain the required level of effort in education.

Private finance by direct beneficiaries

A second domain for input policy initiatives is to increase the financing of education by its direct beneficiaries. Students and their families already bear indirect costs of education (the value of their time) and in some cases direct costs (uniforms, materials, tuitions and contributions of various kinds to schools). The question is how to increase the level of private effort while preserving efficiency and, especially, equity. It is important to design these policies with sensitivity to the fact that the crisis is likely to have hit some social sectors harder, making them unable to maintain, let alone expand, previous levels of private contribution. For instance, for the very poor who may have previously made the effort to send one or more children to school for some years, the opportunity cost of sending a child to school may have

increased if overall income of the household has decreased; hence these social sectors would need *additional* incentives to maintain their previous level of effort. This means that policies to increase private contributions should be combined with analysis of changes in household income by social sector and studies on the income elasticity of demand for schooling. A progressive example is the school lunch programme implemented by the Brazilian government.

Two policy options are: cost recovery by level and the development of private schools [Schiefelbein 1986b]. Cost recovery schemes could be implemented by introducing user charges or by using student loans. The main focus of attention should be on the levels where private returns considerably exceed social returns, namely at the higher levels. Students' fees for higher education, complemented by sound loan schemes and scholarships for students from deprived groups, seem to be a rational way of increasing [Schiefelbein 1986a]. It is crucial that cost recovery at any level be implemented, ensuring that provision of education will not have a class bias. This means ensuring that students from all social groups will continue to have access to education at all levels; preserving or increasing equality of opportunity should mean improving the quality of basic education for the socially disadvantaged, as well as implementing extensive scholarship programmes at all levels.

We have already discussed the political constraints to raising tuition for university students, but the government could seek broad support for the policy by explaining the rationale for the policy to the general public [Schiefelbein 1986b, p.34]. In addition, the support of the university community and of the basic education levels could be sought by explaining to them such a rationale, and involving them in the design of alternatives that meet the desired objectives of efficiency and equity. Experience with student loans in Latin America suggests that recovery rates have been low. New schemes could build on existing experiences to extend and improve this mechanism of finance [Schiefelbein 1986b, p.49].

The importance of using means-testing systems when cost-recovery schemes are introduced cannot be over-emphasized since otherwise equity would suffer. This is consistent with the thesis of this paper that any area of policy reform should be approached with a systemic analytic framework. There is evidence in Latin America that quick-fix approaches to cost-recovery can easily loose sight of this systemic view:

> "Chile did raise [university] tuitions in the late 1970s while drastically reducing the subsidies to the universities ... thereby raising the amount of cost recovery to 25%. But Chile failed to introduce a means-testing system, and provide tuition and fee waivers on a more targeted basis to students from low income families, so by 1985 enrolment fell by 20,000 students and most of these students from lower income families were driven out." [McMahon 1989, p.26].

Private education seems to be expanding in Latin America, probably due to the fact that the Catholic Church, which sponsors about three- quarters of private schools in Latin America, has shifted emphasis from education to pastoral activities [Schiefelbein 1986b, pp.34-42]. An option to increase efficiency and equality would be to provide public subsidies to certain private schools with lower unit costs or ability to reach marginalized groups, such as the *Fé y Alegría* schools in the Andean countries, given that "the magnitude of the private educational activity in the lower socio-economic groups depends on the amount and conditions of public subsidies" [Schiefelbein 1986b, p.42].

Private finance by indirect beneficiaries

A third area for policy initiatives is to tap profit- and non-profit-making organizations for additional contributions. Given that their interest may focus on certain educational activities their contribution could be better linked with special projects in non-formal education. As we discuss below, projects for entrepreneurial development are particularly suitable for the co-operation of business, political and religious organizations with different sectors of the government. The role of the government in this case could be to act as a catalytic agent of those contributions by providing the policy direction and organizational framework that would make co-operation among different groups and sectors possible.

Financing certain forms of training by special taxation of the industries and workers benefiting from those skills is also an option; there is experience in Latin America[3] with "an excellent hands-on vocational training system financed with taxes from the payrolls" [Schiefelbein 1986b, p.42].

2. *Policies to influence educational management*

The fact that the crisis of education described here is of fiscal origin does not necessarily mean that the solutions have to be confined to financial reforms. A *systemic* response to the fiscal constraints would require looking for policy options in the field of management as well. The rationale for management reforms is that better utilization of scarcer resources may preserve efficiency and equity of education. Better management may provide the environment to improve the technical efficiency of the mix of inputs. Management reforms can also increase the ability of the Ministries of Education to *implement* these financial reforms and to develop policy options to respond effectively to the crisis.

For example one of the problems discussed in this paper is the fact that the crisis may affect the poor disproportionately, for some this could reduce their opportunity to send children to school - because of the need to have all family members contribute to household income - an effective government response to preserve equity would be programmes targeting those groups, such as the school lunch programme implemented in Brazil and recently adopted in Venezuela. But the success of these programmes depends on effective implementation which requires highly competent organizations. Management reforms should try to increase those competencies.

Another example of how management reforms complement financial reforms are the proposals to redirect financial support to lower levels of education while looking for additional sources of finance at the

3. In most countries the percentage contributed by the private sector to this type of training far exceeds the contributions of the public sector: Argentina (COMET) 12.1%, Bolivia (FOMO) 1.9%, Brazil (SENAI) 100%, Colombia (SENA) 98.9%, Costa Rica (INA) 97.8%, Chile (INACAP) 2.8%, Ecuador (SECAP) 47.3%, Guatemala (INTECAP) 59.6%, Honduras (INFOP) 88.8%, Mexico (ARMO) 5.6%, Nicaragua (INA) -, Paraguay (SNPP) 100%, Peru (SENATI) 100%, Uruguay (UTU) -, Venezuela (INCE) 82% [Castro 1979, cited in Schiefelbein 1986b, p.44].

higher levels. Effective implementation of this policy requires the institutional means to recover costs, administer means tests to identify deserving students needing assistance, management of loan programmes that insure recovery and even communication and negotiation skills among those proposing the policies to engage in a constructive dialogue with representatives of the universities to negotiate agreements that all parties will feel committed to.

One of the critical issues to implement policy changes that may improve educational management seems to be how to create the conditions by which the existing information, data and research become relevant in the decision-making process and how to create the conditions that will allow the education ministries to learn from their own experience. A study of the Mexican ministry of education gives a good characterization of a common problem in Latin America:

> "The ability of the Secretaría de Educación to learn from year to year is limited by certain structural features. A serious problem is the lack of organizational memory. The Mexican political system is characterized by constant turnover, between and within 'sexenios' of high ranking officials. A good proportion of high officials in the Secretaría were appointed in the middle of the 'sexenio' and did not have previous experience in educational planning or management. The desire of each new government to leave their own mark, leads to structural reforms that make policy continuity difficult. Lack of evaluative information about the educational system makes accurate diagnosis impossible, with the consequent risk of duplication of past mistakes" [McGinn et al. 1983, p.266, our translation].

A similar conclusion is offered in a study of the reform efforts in Colombia and Venezuela in the 1960s and 1970s [Hanson 1986].

The lack of continuity in educational policy is an expensive proposition for Ministries with declining budgets and may discourage the exploration and adoption of creative reforms to address the impact of the adjustment. The creation of the conditions that would allow administrative continuity seems to depend on a political commitment from the State, as illustrated by the Colombian experience with financial decentralization in the 1970s [Hanson 1986]. The desire of an incumbent

president or party may provide the impulse to start a reform effort, but more important is the commitment of the political establishment to allow administrative continuity once the president or party leaves office.

Within the Ministry of Education an emphasis on programme and project allocation would be desirable to facilitate planning and evaluation. The scarce literature investigating the education budget process in Latin America confirms that programme allocations are not used even when formally required [McGinn et al. 1983, p.263].

Implementation of systems of educational management that will maximize the use of existing information about the educational system.

Organizational change should be induced in Ministries of Education to develop managerial excellence. The perennial problems of patronage and corruption need urgent corrective action since their cost to society will surely be larger in times of scarcity. This type of intervention will probably face resistance given the large scale and complexity of the ministries and the weight of bureaucratic traditions.

An option in developing a *professional bureaucracy* is to provide job security and administrative continuity that will allow the development of an '*organizational memory*'. Job stability should, of course, depend on technical competency and on having the skills to perform effectively.

A complementary option is to increase the administrative skills of educational administrators, so that they can do their job better. Alternatively, the participation of existing technically competent people in the system could be promoted. The type of technical skills that are called for to resist a 'culture of cuts' may go beyond the traditional profile of the educational planner or manager [Caillods 1989, Hallak 1989]. Klees has explained the importance of skills to promote the participation of diverging views

> "planners must actively search for ways to broaden the participation of all groups in the definition, collection, and interpretation of information. This implies that a *key* activity of planners should be engaging in negotiation and conflict management, removing the false separation of the technical from the political." [Klees 1989, p.276].

Skills in the traditional areas of planning need to be supplemented with skills in negotiation, communication, evaluation. The focus of skill development should be to produce planners and administrators who will be concerned with implementation rather than with plans or theoretical exercises. Implementation of educational change requires not only good planning, but also more than that. It also demands attention to clients, implementors, tasks, politics and the process through which decisions are made. Further effective implementation requires continued *organizational intelligence* about ongoing change as well as the institutionalization of those changes [Warwick, Reimers and McGinn 1989]. The other options for reform discussed in this paper are geared to develop that kind of organizational intelligence. This concept of organizational intelligence is consistent with the concept of *strategic piloting* developed by Sylvain Lourié as an alternative form of planning suited to uncertainties over long run scenarios.

> "[Strategic piloting] consists of joint action involving a team of actors who 'pilot' educational strategy along a global course, combining the implementation and formulation of tasks with their revision and constant readjustment to ensure that the objectives are consistent with the resources available, and that the resources can deal with the obstacles and are reflected in the constant revision of the objectives" [Lourié 1989, pp.326-327].

A third option is to modernize information systems. Timely and accurate information flows are necessary for policy analysis that reflects the educational system's range of options and tracks implementation of policy choices. Such systems can benefit from computer hardware and software that enhances the capability of data processing and communications. But it is important to recognize that the technology is only part of a system where the human element is the principal component. Modern computer technology will result in modern information systems only if the information processed in this way becomes relevant to the decision-making and implementation processes. This requires that the people at various levels in the system are both able

and willing to interact with modern systems of information processing and transmission. These systems can help process educational data into information useful for policy analysis and planning[4].

Some types of information that could be computerized are:

- Educational costs and finances.
- Efficiency ratios (promotion, repetition, dropout).
- Student achievement data.

The importance of an up-to-date and efficient system of educational statistics is evident. Those statistics provide the indicators to monitor the working of the educational system and to assess the impact of policy changes. Nowadays the availability of low-cost computer equipment makes it easier to establish management information systems which close the gap between the decision-makers and the automated databases. This, together with the increase in computer processing speed and development of user-friendly educational planning software, makes it easier to incorporate an accurate knowledge base in policy dialogue exploring educational scenarios.

Many statistical offices in education ministries are not familiar with technological developments in this field. As a result, educational managers and top-decision makers are handicapped by having to rely on outdated statistics. Information on outcomes of the educational system (levels of educational attainment of the population, literacy) is frequently a decade old. The most basic data on student achievement, which would allow monitoring the impact of the adjustment or to assess the cost-effectiveness of different policy options, are a rare commodity in most ministries. A positive exception is the effort initiated in 1986 in Costa Rica to systematically collect student achievement data.

Another type of information useful for decision making is the assessment of the implementation of educational innovations in the past or studies examining the effect of policy-related variables on school outcomes such as learning or efficiency rates. This type of information broadens the scope of policy options to be considered and allows the system to learn from the experience gained in the implementation of

4. For an interesting discussion of the differences between data and information see McGinn and Schiefelbein, 1978.

those innovations or reforms. In Latin America there is an excellent network of information and documentation of educational research (REDUC). This network, coordinated by the Center for Research and Development of Education in Santiago (CIDE), includes 20 research centres in Latin American countries and publishes the ***Resúmenes analíticos en educación*** (Abstracts of Educational Research). This is a useful tool to facilitate access to research and documentation about educational innovations carried out in Latin America. Evaluations comparing REDUC with international databases (ERIC) conclude that REDUC is superior in several dimensions which make it more relevant for decision-making in educational policies in Latin America [Reimers and Villegas 1984]. The fact that national centres associated with this regional network already exist makes it relatively easy to develop and strengthen the links between the Ministries of Education and this live memory of the educational experience of Latin America.

State-of-the-art reviews of research on education in the region, such as the volume on primary education prepared by Muñoz and colleagues [Muñoz, 1988], should become essential discussion material in the development of policy options.

Systematic use of innovation research, evaluation and planning

Another option for administrative development would be to incorporate *innovation research* (to identify cost-effective systems), *evaluation* and *rational planning* as crucial ingredients of the decision-making process. Unfortunately support for education research activities may have diminished as part of the adjustment discussed here. A similar pattern is observed in the growth of research publications in Latin America as was observed in the growth of education expenditures. The average number of articles summarized in the *Resúmenes analíticos en educación* for each of the Latin American countries *increased* by 83% between 1976 and 1979, *increased* by 9% between 1979 and 1981 and *decreased* by 5% between 1981 and 1984.

A recent study about the use of research-based information by educational decision-makers concludes that there is a loose link between the two [Corvalan 1988]. The new scenario of reduced fiscal resources calls for a radical change in the traditional linkage (or lack thereof)

between educational research and policy in Latin America. Educational decision-makers need information from reliable and valid studies on the cost-effectiveness of different potential interventions to develop policy scenarios. Research and policy analysis units should be set up as advisory bodies at the highest levels of decision making in the education ministries. This new relationship also requires a shift in research tradition and focus from topics of academic or disciplinary interest into areas of direct relevance for policy. The study of variables which can be influenced by policy should be the primary focus of these research units. Given that studies on social science research utilization by policy makers show that the quality of the research is an important determinant of its use [Weiss and Bucuvalas 1980] the quality of the research produced by those units should be of the highest level.

There are many policy questions and issues for which solutions have to be *invented*. Among them are: 1) what forms of community mobilization are feasible and functional in order to increase private contributions to education? Who can contribute, what and how can those contributions be brought forth?; 2) What forms of educational administration increase efficiency? 3) How can the cost-effectiveness of delivery systems be increased? 4) What types of educational technologies would increase the level of output with the same or a lower level of input?

Increasing private contributions is an area where many innovative options could be explored. Their impact should be assessed not only in terms of the additional resources they bring in, but also in terms of their impact on external and internal efficiency. Some of the options that could be explored are: student participation in school maintenance and cleaning, already common in Japan [Visalberghi 1986, p.248]; community participation in school building and improvement; participation of the school in the production of goods and services; direct and specific taxation of industries which benefit from the training received by those they employ[5].

Another area in great need of innovation is that of organizational arrangements that will help establish the "professional bureaucracy" and decision-making system of educators described above. Among the

5 For a research agenda on the financing of education see: Schiefelbein 1983.

approaches to be examined could be the role of participatory decision-making, or greatest two-way communication between teachers and planners at the central level[6]. I have argued earlier that the reform efforts to respond to the crisis must be *systemic* and not uni-dimensional. More efficient communication will help to preserve quality of education, particularly if innovative policies in delivery systems are to be implemented. The climate of budget constraints (the "culture of cuts" described earlier) may be too receptive to innovations that will reduce unit costs to the detriment of the quality of the education delivered. Adequate feedback channels (from teachers to evaluators and planners, for instance) may facilitate correction of innovations with significant detrimental effects on quality. An example of this type of participatory approach to educational planning is the experiment of Los Santos in Costa Rica. The planners go to the communities and *listen* to their needs, involving them in the design of the curriculum. Preliminary reports of this experiment suggests that it has reduced dropout and repetition rates [Pinto 1989].

The option of reducing unit costs by increasing the intensity of use of facilities or teachers (larger schools, increased pupil:teacher ratios) or the use of teaching technologies minimizing labour costs should be evaluated not only in their potential to reduce costs but also in terms of the functions of schooling. If such a function is something different than providing a space for children for a certain number of years it may be important to evaluate the impact of the proposed changes on the performance of the school on those functions. Husén, for instance, has been very critical of the use of teaching machines or increases in school size to reduce costs, on the grounds that those innovations reduce the inter-personal contacts essential to the process of social education [Husén 1982, p.51].

Of course, the conservative alternative is equally harmful given the new economic realities. Assuming that "todo tiempo pasado fué mejor" (old times were always better) in terms of educational quality would be wrong. The status quo in educational technologies has no special virtue aside from the fact that its limitations are known. But the fact that the

6. For a discussion of relevant issues on different forms of decentralized management see McGinn and Street 1986.

apparent success in high gross enrolment ratios hides many stories of failure for many repeaters and dropouts, or even for many who graduate less than well equipped for productive jobs and fulfilling lives, should be an incentive to explore alternatives to traditional ways of teaching and organizing the schooling experience. Different curricula and approaches to teaching, different schedules, part time education, and work-study combinations are innovations that should be explored particularly to reach those who have been least served by traditional education.

3. *Policies to influence educational outputs: sharpening the links between education, work and productivity*

Among the issues of importance in the analysis of the Latin American debt crisis are the issues of employment and productivity. Increased unemployment results when the adjustment policies are designed to reduce internal demand[7]. In this sense addressing unemployment per se should become a driving force to refocus education programmes. In addition, a partial alleviation of the crisis is expected from the development of export-oriented industries that would be competitive in world markets. This objective would fuel the need to train human resources to increase productivity in those industries.

Increased productivity and job creation are hence two positive driving forces to readjust the development of educational programmes and levels. Reform in these areas is a necessary, although insufficient[8] step to make the outputs of the education system better fit the needs of the Latin American economies. The options to be considered include reforms to serve the modern as well as the traditional sectors of the economy.

7. This refers to goods with national value-added since reductions on demand of imported goods has implications for employment in the country producing the good, but not in the country consuming it.

8. It is not sufficient because the optimization of the links between education-work-productivity requires reforms in both education and production. If there is no demand for the services of graduates, either because the economy cannot absorb them or because labour markets are segmented, there is no chance for education to contribute to productivity [Davis 1980a, p.209]. The discussion of potential corrective measures such as developing labour-intensive, rather than capital-intensive industries, is outside the scope of this thesis.

Education for productivity in the modern sector

The modern sector, particularly the industries that need to develop comparative advantage by world standards, needs a labour force with the skills and attitudes to provide that competitive edge. Manpower planning methods could provide a sense of direction for levels and programmes to improve the fit between educational background of graduates and job requirements of openings in the industrial sector [Davis 1980a, p.212]. A potential risk in using manpower planning methods for this purpose is that major technological innovations (in the fields of information and genetics, for instance, or in new technologies which may emerge) are likely to transform the occupational structure of leading industries. For manpower forecasts, this means that the coefficients of workers by sector by job, and of the educational requirements for occupation by sector are unpredictable from past trends which reflect old technologies.

An option to overcome the risks implicit in manpower planning is to combine it with some heuristic approaches to plan development of the work force for leading industries and technologies and to plan at the subsystems (industry or region) level, or use plans as general indicative statements.

> "Against an uncertain future and over a wide domain and for a large workforce, manpower planning can only write very general requirements by projecting growth in employment by sectors of the economy, distributing this employment by occupations, and tracing education and training requirements from the occupational structure." [Davis 1980a, p.214].

All levels and types of education should be affected by this approach, redefining the numbers and capabilities of graduates required at each level. The curricular implications at the basic levels include activities for work appreciation and pre-vocational development. At the secondary and higher levels the implications are to develop different vocational programmes and technical education, and to de-emphasize formalistic education whose main purpose is only to prepare graduates for the next level of education. The dilemma to be solved here is how to

develop a curriculum that emphasizes practical skills while preparing for the type of higher level training necessary for development of high-technology industries. The equitable and efficient solution to this dilemma is a sort of balancing act that may require more effort from students and teachers in order to give all graduates at basic levels the practical skills needed practical skills for productive employment or self-employment, and at the same time to give all students the opportunity of acquiring the basic knowledge necessary to compete for further study at higher levels. The objective should be universal basic education of an equal quality which provides both academic skills and an appreciation of work as well as basic skills needed to find productive employment and develop both within and between the worlds of education and work. Even though non-formal alternatives seem best suited for this type of entrepreneurial development, general aspects of entrepreneurship and vocational education could be included in the general curriculum at all levels. Guidance counselling programmes and information networks can also be developed within the formal education sector in order to link jobs and graduates . Non-formal and adult education are also important channels for linking education and productivity. In particular, entrepreneurial development training can serve small, highly technological firms in the modern sector of the economy; this seems particularly adequate for the fields of biotechnology, informatics and microelectronics. Industrial education on-the-job, through evening classes or summer schools can improve the skills of workers in larger firms in the modern sector.

Education for productivity in the traditional sector

The traditional sector needs to be given due consideration simply because of its relative size and flexibility which offer the potential to reduce unemployment[9].

9. Figures on relative size of the traditional sector are difficult to obtain, official estimates of the traditional sector as a percentage of the urban workforce are 24 percent in Brazil (1972), 39 percent in Chile (1968), 50 percent in the Dominican Republic (1973), 48 percent in Ecuador (1970), 46 percent in El Salvador (1974), 27 percent in Mexico (1970), 57 percent in Paraguay (1973), 60 percent in Peru (1970) and 44 percent in Venezuela (1974) [Source PREALC, cited in Hallak and Caillods 1981, p.15].

Survey data of workers in the traditional sector suggest that this group has generally received less education than workers in the modern sector "as if, unable to find employment in the modern sector, the least-educated, the illiterates and school drop-outs had no alternative but to seek employment in the traditional sector" [Hallak and Caillods 1981, p.56]; this could imply that the productivity in this sector might increase if the education provision were also improved.

Heuristic planning approaches, creativity and flexibility to collect relevant information and project planning techniques for later stages in the life of projects (institutionalization) seem most suited to this field.

The driving forces here for the development of educational programmes are both to foster skills and attitudes that will increase to productivity, but more importantly that will allow graduates to create their own jobs as well as generate employment for others. Job creation and entrepreneurial development are as important as the specific skills for a trade or occupation in this sector. Harper (1984) identifies three major components of entrepreneurial development programmes: training in elementary techniques of business management, assistance with market analysis and funding proposal preparation and training "to think and act in an entrepreneurial way" [Harper 1984, p.82]. The same author indicates that management training and technical skill training are not clearly differentiated in these programmes [Harper 1984, p.82]. To the extent possible the areas of activity to be targeted for educational efforts would be those linked to industries in the modern sector which would solve "most of the initial problems of the small scale enterprises [...] by developing complementarity between large and small firms and encouraging subcontracting" [Sen 1979, p.236].

There is no single systematic planning approach to plan this type of educational programmes. Sen (1979) proposes a method (which he calls a variant of manpower planning) that projects the demand of entrepreneurs from projections of future business opportunities; the method combines systematic market analysis techniques with heuristics on social and political factors [Sen 1979, pp.216-229].

In the current situation in Latin America a starting point could be to select a range of activities in the traditional sector in terms of some criteria, for instance in terms of their degree of linkage to the modern sector or to export earnings. Market analysis techniques may help target

the most productive sectors. Heuristic approaches may also help to identify leading activity areas for small and medium enterprises where high entrepreneurial talent is required. In Latin America it may be important to target not only the traditional urban sector but also the traditional rural sector of the economy [Schiefelbein 1979].

Once the activities to be developed have been identified, the next step may be to start up projects to provide skills and entrepreneurial development for those activities. Instruction for skill development can be designed on the basis of rationalization of production processes involved in each line. The emphasis in training should be on skill development rather than certification, following approaches such as the Modules of Employable Skills developed by the International Labour Organization to design vocational training on the basis of identifiable skill requirements for each job [Little 1986, p.16].

Organization of the project will be more difficult since there is no single organizational format; Davis (1988b) suggests planning linkages at different levels, from delivery units in the community to national and international agencies. The lack of a unique organizational format stems from the diversity of programmes. A recent article identifies 15 dimensions in which entrepreneurial development programmes can vary: objectives, technology and skill training needs, occupational training needs, leadership styles and motives, type of output of enterprises, size of industries, scale of production, etc. [Davis 1988a]. The theory on the subject suggests that the best approach to this complexity of programme definition is wide variability and adaptability in order to increase the likelihood of success of a given project:

> "It is precisely this enormous variability that makes the programmes difficult to describe and work with, but very versatile, resistant to failure, if somewhat complex to design or even to describe in programmatic terms." [Davis 1988a, p.15].

It would seem that there are two approaches to start up these projects. One is to work on a project level, close to the community to be served and to delivery units. This seems an adequate response for local communities, groups of businesses or community organizations. The second approach is to develop a national framework to co-ordinate efforts at the delivery unit level; the critical element is an integrated

approach by linking resources from different sectors. This seems more appropriate for a national effort by public or private agencies. The following two examples from India and Spain illustrate both approaches; whatever the level, current thinking on the topic emphasizes the need to build on existing projects rather than start from scratch [Davis 1988b, King 1983, Niehoff and Neff 1977].

The Calcutta Youth-Self Employment Centre provided young people the skills to set up their own businesses. The areas of training initially selected included "air conditioning and refrigeration, cement products, plumbing, tire repair and recapping, spray painting, wood projects, welding, wiring, and electrical servicing (...) some of the first-generation selections were quite unsuccessful and were closed down or modified" [Davis 1980a, pp.237-238]. Among the factors that seemed to have contributed to the success of the project are the flexibility to adapt and shift training to different areas, and the leadership, networks and resources volunteered by many organizers and instructors.

A more recent development in Spain illustrates that entrepreneurial development can serve the twin objectives of fostering national productivity and reducing unemployment. The Strategy for Productive Employment "is the result of an agreement among labour unions, the Government and entrepreneurs, and comprises three elements: training, information, and support." [Domínguez-Urosa 1986, p.2]. The strategy was developed to serve job creation and entrepreneurial development in a wide range of fields of activity at the level of small and medium-sized enterprises. The training aspects of the strategy focus on technical and entrepreneurial skills provided by government institutes and private schools of business. An important conclusion of the report of this strategy is that the three elements (training, information and support) are necessary for the success of the initiative [Domínguez-Urosa 1986, p.5].

Education to foster productivity and entrepreneurship in the traditional sector of the economy seems an important policy response to the crisis, yet, judging from our analysis in the structure of educational expenditures, this type of non-formal education is more likely to suffer from the budget cuts since it is less institutionalized. A special effort could be made to seek out private contributions to this type of education (by mobilizing support from religious, political, business, military and other social organizations) but the administrative and professional effort

necessary to catalyze private response will require significant contribution from the public sector. The success of project initiatives for entrepreneurial development depends on the integration of training with other components: information and continued assistance, credit schemes, and at some levels health and social security. This implies that funding for those projects exceeds the capacity and responsibilities of the Ministry of Education. It could involve the Ministries of Finance, Work, Development, Agriculture, Industry, Health and Defence. The fact that education projects of this type require the collaboration of various sectors (within the government and in the society) is at the same time an advantage and a disadvantage. The disadvantage results from the special efforts of co-ordination among sectors which are needed, but the advantage results from the fact that each sector can claim credit for the total success of the enterprise to which they contribute only partially. The small scale of delivery units enables them to be spread out so as to maximize geographical coverage and political visibility for low intensity operations. This seems to be an area for collaboration among many potential winners (different government sectors, private sector, social organizations) and no clear losers.

Chapter 9

Envoy

The Latin American debt crisis will certainly have an impact in the economic, political and social spheres. Impact in each area will in turn feed back into the other spheres. In this sense the observed negative effect in education discussed in this study is likely to have a consequent negative impact on medium and long term economic, political and social development.

The challenge for those concerned with achieving a better future for the people of Latin America is how to oppose the negative short-term effects of the debt crisis. A major area of action is certainly the solution of the debt problem itself, but solutions in that domain may take long to show significant improvements. Direct action is also needed to protect sectors such as education from the adjustment process.

Quick-fix responses to the adjustment process will result in reduced efficiency and increased inequalities in the delivery of education. The debt crisis provides a sense of urgency for major policy initiatives in order to preserve the contributions to economic, political and social development of education. The major challenge for the Latin American governments is to bring forth partnership and responsibility among different social groups so as to make the necessary policy changes politically feasible.

Appendix A

The following tables summarize the results of the OLS and C-O regressions of the education expenditures series on the debt level series.

Each table summarizes the results of the regressions for each of the countries examined. The table is divided into three parts, each part examining, respectively, the impact on education expenditures as a percentage of central government expenditures, on constant educational expenditures and on education as a percentage of government expenditures net of payment of interests on public debt.

Within each of these three parts the first column indicates the particular predictor used in the regression (level of debt). The second column indicates the period covered in the time series. Columns three, four and five summarize the analysis of autocorrelation, by presenting, respectively, the Durbin Watson, the first order autocorrelation and the conclusion of the analysis, where 'no' means there is no first-order autocorrelation, 'pos' means there is significant positive autocorrelation, and 'und.' means the existence of autocorrelation is undetermined (test is inconclusive).

Columns six, seven and eight summarize the results of the OLS regression between the series. R^2 is the coefficient of determination, p is the probability of type I error associated with the F (or the t in this case since the regressions include only one independent variable) and the slope of the regression associated with the particular predictor.

Columns nine, ten and eleven do the same summary for the results of the Cochrane-Orcutt procedure, with the exception that the F is presented, instead of the probability of the F, an asterix next to the observed F means that the test is significant at the level of 0.05, two asterixes mean that it is also significant at the level of 0.01.

Appendix A.(1). Summary of Impact of Debt in Argentina.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1970-86	1.5	0.2	no	0.24	0.05	-0.19	0.15	2.4	-0.17
dodxgs	1970-86	1.5	0.2	no	0.26	0.04	-0.01	0.20	3.4	-0.01
dodgnp	1970-86	1.6	0.2	no	0.34	0.01	-0.08	0.27	5.1	-0.08
tdsxgs	1970-86	1.5	0.2	no	0.20	0.08	-0.10	0.14	2.3	0.09
tdsgnp	1970-86	1.8	0.1	no	0.34	0.01	-0.77	0.28	5.5*	-0.72
intxgs	1970-86	1.5	0.3	no	0.26	0.04	-0.12	0.19	3.3	-0.11
intgnp	1970-86	1.6	0.2	no	0.32	0.02	-0.83	0.25	4.7*	-0.82

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1976-86	1.4	0.0	no	0.03	0.62	-2.21	0.20	2.0	-5.09
dodxgs	1976-86	1.7	-0.0	no	0.00	0.94	-0.01	0.04	0.3	-0.07
dodgnp	1976-86	1.7	-0.0	no	0.01	0.83	0.23	0.02	0.2	-0.42
tdsxgs	1976-86	1.7	-0.0	no	0.02	0.71	-0.57	0.08	0.7	-1.08
tdsgnp	1976-86	1.7	-0.0	no	0.00	0.85	2.28	0.05	0.4	-7.04
intxgs	1976-86	1.6	-0.0	no	0.00	0.88	-0.25	0.02	0.6	-1.09
intgnp	1976-86	1.7	-0.0	no	0.00	0.95	0.79	0.05	0.4	-6.91

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1970-86	1.5	0.2	no	0.08	0.27	-0.10	0.04	0.6	-0.09
dodxgs	1970-86	1.7	0.1	no	0.25	0.04	-0.01	0.22	3.9	-0.01
dodgnp	1970-86	1.7	0.2	no	0.27	0.03	-0.06	0.24	4.3	-0.07
tdsxgs	1970-86	1.8	0.1	no	0.22	0.06	-0.10	0.20	3.4	-0.10
tdsgnp	1970-86	1.8	0.1	no	0.25	0.04	-0.63	0.22	3.9	-0.62
intxgs	1970-86	1.7	0.1	no	0.24	0.04	-0.11	0.21	3.8	-0.11
intgnp	1970-86	1.7	0.1	no	0.26	0.04	-0.72	0.23	4.2	-0.74

Appendix A.(2). Summary of Impact of Debt in Bolivia.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1972-84	1.3	-0.0	no	0.25	0.08	-0.17	0.24	3.2	-0.16
dodxgs	1972-84	2.1	-0.2	no	0.23	0.10	-0.03	0.38	6.0	-0.03
dodgnp	1972-84	2.3	-0.2	no	0.25	0.08	-0.13	0.31	4.5	-0.11
tdsxgs	1972-84	1.6	-0.0	no	0.03	0.57	-0.09	0.01	0.1	-0.05
tdsgnp	1972-84	1.6	-0.0	no	0.01	0.71	-0.18	0.00	0.0	0.02
intxgs	1972-84	2.0	-0.1	no	0.27	0.07	-0.42	0.25	3.4	-0.35
intgnp	1972-84	1.9	-0.1	no	0.19	0.14	-1.12	0.16	1.9	-0.91

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1972-84	0.5	0.6	pos	0.02	0.64	-0.01	0.00	0.0	-0.00
dodxgs	1972-84	0.6	0.6	pos	0.15	0.18	0.01	0.10	1.1	0.00
dodgnp	1972-84	0.8	0.5	pos	0.45	0.01	0.03	0.07	0.8	0.02
tdsxgs	1972-84	1.7	-0.0	no	0.61	0.00	0.07	0.52	10.7**	0.09
tdsgnp	1972-84	2.1	-0.2	no	0.72	0.00	0.24	0.82	45.0	0.26
intxgs	1972-84	0.7	0.6	pos	0.51	0.01	0.11	0.23	2.9	0.09
intgnp	1972-84	0.9	0.5	pos	0.57	0.00	0.37	0.22	2.8	0.31

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1972-84	1.4	-0.0	no	0.25	0.08	0.17	0.27	3.8	0.18
dodxgs	1972-84	1.8	-0.1	no	0.23	0.09	-0.03	0.26	3.5	-0.03
dodgnp	1972-84	1.9	-0.1	no	0.17	0.16	-0.10	0.16	1.9	-0.08
tdsxgs	1972-84	1.7	-0.1	no	0.06	0.43	-0.13	0.05	0.5	-0.10
tdsgnp	1972-84	1.7	-0.1	no	0.02	0.64	-0.23	0.13	0.1	-0.15
intxgs	1972-84	1.8	-0.1	no	0.13	0.22	-0.31	0.11	1.2	-0.23
intgnp	1972-84	1.7	-0.1	no	0.08	0.35	-0.75	0.06	0.6	-0.53

Appendix A.(3). Summary of Impact of Debt in Brazil.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1970-86	0.6	0.7	pos	0.54	0.00	-0.09	0.08	1.2	-0.39
dodxgs	1970-86	1.3	0.3	und	0.67	0.00	-0.02	0.03	0.4	0.00
dodgnp	1970-86	0.8	0.6	und	0.74	0.00	-0.15	0.40	9.5**	-0.12
tdsxgs	1970-86	1.2	0.4	und	0.54	0.00	-0.12	0.15	2.5	0.05
tdsgnp	1970-86	1.4	0.3	und	0.80	0.00	-1.20	0.66	27.2**	-1.18
intxgs	1970-86	1.6	0.2	no	0.73	0.00	-0.19	0.55	16.9**	-0.17
intgnp	1970-86	1.2	0.4	und	0.82	0.00	-1.58	0.64	24.6**	-1.57

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1970-86	0.8	0.5	pos	0.36	0.01	1.16	0.21	3.7	0.99
dodxgs	1970-86	0.9	0.5	pos	0.66	0.00	0.33	0.52	14.9**	0.30
dodgnp	1970-86	1.0	0.3	pos	0.35	0.01	1.58	0.40	9.3**	-3.53
tdsxgs	1970-86	0.5	0.5	pos	0.53	0.00	1.84	0.49	13.3**	2.04
tdsgnp	1970-86	0.9	0.3	pos	0.41	0.01	13.40	0.02	0.3	5.54
intxgs	1970-86	0.7	0.5	pos	0.61	0.00	2.69	0.51	14.6**	3.86
intgnp	1970-86	0.9	0.3	pos	0.40	0.01	17.21	0.23	4.2	-42.01

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1970-86	0.6	0.7	pos	0.15	0.12	-0.04	0.01	0.2	0.02
dodxgs	1970-86	0.9	0.4	pos	0.33	0.02	-0.01	0.04	0.6	0.01
dodgnp	1970-86	0.7	0.6	pos	0.39	0.01	-0.09	0.10	1.6	-0.06
tdsxgs	1970-86	1.9	0.0	no	0.55	0.00	-0.10	0.45	11.3**	-0.09
tdsgnp	1970-86	1.6	0.2	no	0.70	0.00	-0.92	0.59	20.2**	-0.90
intxgs	1970-86	1.5	0.1	no	0.56	0.00	-0.13	0.03	0.5	-0.07
intgnp	1970-86	1.0	0.4	pos	0.59	0.00	-1.10	0.30	6.1*	-1.03

Appendix A.(4). Summary of Impact of Debt in Chile.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1972-86	0.8	0.6	pos	0.08	0.32	-0.08	0.04	0.5	-0.06
dodxgs	1972-86	1.3	0.2	und	0.41	0.01	-0.01	0.57	15.6**	-0.01
dodgnp	1972-86	0.9	0.5	pos	0.42	0.01	-0.02	0.34	6.3*	-0.03
tdsxgs	1972-86	0.9	0.5	pos	0.03	0.55	0.02	0.01	0.1	-0.01
tdsgnp	1972-86	0.7	0.6	pos	0.03	0.56	-0.06	0.13	1.9	-0.18
intxgs	1972-86	0.7	0.6	pos	0.07	0.35	-0.04	0.12	1.7	-0.08
intgnp	1972-86	0.8	0.6	pos	0.13	0.19	-0.14	0.15	2.2	-0.23

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1972-86	0.3	0.7	pos	0.00	0.89	-0.13	0.61	18.5**	-1.31
dodxgs	1972-86	0.2	0.7	pos	0.24	0.06	-0.08	0.27	4.5	-0.05
dodgnp	1972-86	0.3	0.7	pos	0.00	0.85	0.02	0.21	3.1	-0.12
tdsxgs	1972-86	0.5	0.6	pos	0.17	0.13	0.49	0.14	2.0	-0.23
tdsgnp	1972-86	0.5	0.6	pos	0.19	0.11	1.73	0.42	8.8	-1.71
intxgs	1972-86	0.5	0.6	pos	0.23	0.07	0.81	0.23	3.6	-0.67
intgnp	1972-86	0.4	0.6	pos	0.15	0.15	1.75	0.22	3.3	-1.70

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1972-86	0.6	0.5	pos	0.16	0.14	0.16	0.01	0.1	0.02
dodxgs	1972-86	0.7	0.5	pos	0.47	0.00	-0.01	0.27	4.4	-0.01
dodgnp	1972-86	0.5	0.5	pos	0.05	0.44	-0.01	0.30	5.1*	-0.02
tdsxgs	1972-86	1.5	0.1	no	0.44	0.01	0.09	0.01	0.1	-0.01
tdsgnp	1972-86	0.8	0.4	pos	0.23	0.07	0.23	0.13	1.8	-0.16
intxgs	1972-86	0.5	0.5	pos	0.02	0.64	0.03	0.28	4.8*	-0.11
intgnp	1972-86	0.5	0.5	pos	0.00	0.91	0.02	0.26	4.2	-0.26

Appendix A.(5). Summary of Impact of Debt in Costa Rica.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha<.05}$	slope
intgov	1973-86	1.3	0.2	und	0.67	0.00	-3.08	0.03	0.4	-0.25
dodxgs	1972-86	1.6	0.0	no	0.92	0.00	-0.05	0.92	139.1**	-0.05
dodgnp	1972-86	0.9	0.4	pos	0.75	0.00	-0.10	0.00	0.0	0.00
tdsxgs	1972-86	1.6	0.0	no	0.58	0.00	-0.29	0.15	2.1	-0.04
tdsgnp	1972-86	1.5	0.0	no	0.59	0.00	-0.69	0.12	1.7	-0.08
intxgs	1972-86	1.4	0.1	no	0.52	0.00	-0.30	0.06	0.7	-0.02
intgnp	1972-86	1.2	0.2	und	0.50	0.00	-0.71	0.06	0.8	-0.06

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha<.05}$	slope
intgov	1973-86	0.4	0.7	pos	0.02	0.67	44.48	0.00	0.0	6.97
dodxgs	1972-86	0.4	0.7	pos	0.08	0.32	1.51	0.10	1.4	-2.86
dodgnp	1972-86	0.4	0.7	pos	0.02	0.58	1.88	0.49	11.4**	-10.57
tdsxgs	1972-86	0.4	0.7	pos	0.09	0.28	11.57	0.02	0.3	2.88
tdsgnp	1972-86	0.4	0.7	pos	0.04	0.48	18.00	0.00	0.0	1.09
intxgs	1972-86	0.4	0.7	pos	0.05	0.60	6.29	0.00	0.0	1.08
intgnp	1972-86	0.3	0.7	pos	0.01	0.75	9.21	0.00	0.0	-1.06

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha<.05}$	slope
intgov	1973-86	1.3	0.2	und	0.63	0.00	-3.05	0.00	0.0	0.01
dodxgs	1973-86	1.5	0.0	no	0.92	0.00	-0.05	0.90	95.9**	-0.05
dodgnp	1973-86	0.9	0.4	pos	0.73	0.00	-0.10	0.00	0.0	-0.00
tdsxgs	1973-86	1.5	0.0	no	0.57	0.00	-0.29	0.24	3.5	-0.05
tdsgnp	1973-86	1.5	0.1	no	0.58	0.00	-0.70	0.22	3.1	-0.11
intxgs	1973-86	1.3	0.1	und	0.51	0.00	-0.31	0.10	1.3	-0.03
intgnp	1973-86	1.1	0.2	und	0.48	0.01	-0.71	0.12	1.5	-0.09

Appendix A.(6). Summary of Impact of Debt in Dominican Republic.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1973-85	1.6	0.0	no	0.52	0.01	0.45	0.71	24.9**	0.54
dodxgs	1973-85	1.4	0.1	no	0.44	0.01	0.02	0.48	9.1*	0.03
dodgnp	1973-85	1.1	0.3	und	0.17	0.17	0.04	0.02	0.2	0.02
tdsxgs	1973-85	1.4	0.1	no	0.50	0.01	0.22	0.62	16.0**	0.26
tdsgnp	1973-85	1.3	0.2	und	0.31	0.05	0.68	0.28	3.8	0.64
intxgs	1973-85	1.6	-0.0	no	0.45	0.01	0.41	0.68	21.1**	0.51
intgnp	1973-85	1.3	0.2	und	0.22	0.10	0.94	0.09	1.0	0.69

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1973-85	1.1	0.2	und	0.82	0.00	6.25	0.77	33.3**	7.49
dodxgs	1973-86	0.8	0.6	pos	0.13	0.21	0.13	0.00	0.0	-0.01
dodgnp	1973-86	0.7	0.7	pos	0.02	0.66	0.13	0.08	1.0	-0.52
tdsxgs	1973-86	1.0	0.3	und	0.60	0.00	2.62	0.42	7.9*	2.08
tdsgnp	1973-86	0.6	0.6	pos	0.31	0.04	6.68	0.28	4.2	6.17
intxgs	1973-86	1.0	0.4	pos	0.29	0.05	3.20	0.02	0.2	1.28
intgnp	1973-86	0.7	0.6	pos	0.09	0.29	5.50	0.02	0.2	-4.07

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1973-85	1.6	0.0	no	0.66	0.00	0.61	0.79	37.5**	0.71
dodxgs	1973-85	1.2	0.2	und	0.50	0.01	0.03	0.39	6.3*	0.03
dodgnp	1973-85	0.9	0.4	pos	0.20	0.13	0.06	0.00	0.0	-0.00
tdsxgs	1973-85	1.4	0.2	no	0.59	0.00	0.30	0.62	16.4**	0.31
tdsgnp	1973-85	1.2	0.2	und	0.39	0.02	0.93	0.19	2.3	0.60
intxgs	1973-85	1.6	0.1	no	0.54	0.00	0.56	0.73	27.7**	0.67
intgnp	1973-85	1.2	0.2	und	0.29	0.06	1.31	0.00	0.0	-0.27

Appendix A.(7). Summary of Impact of Debt in Ecuador.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov										
dodxgs	1973-85	1.6	0.1	no	0.06	0.40	0.01	0.06	0.6	0.01
dodgnp	1973-85	1.6	0.1	no	0.04	0.51	0.03	0.04	0.4	0.03
tdsxgs	1973-85	2.0	-0.1	no	0.07	0.40	0.06	0.20	2.5	0.10
tdsgnp	1973-85	1.9	-0.0	no	0.05	0.46	0.19	0.12	1.3	0.29
intxgs	1973-85	1.7	0.1	no	0.03	0.58	0.06	0.02	0.2	0.05
intgnp	1973-85	1.6	0.1	no	0.02	0.65	0.16	0.01	0.1	0.13

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov										
dodxgs	1973-85	1.4	0.3	no	0.37	0.03	29.10	0.13	1.5	19.45
dodgnp	1973-85	1.2	0.4	und	0.29	0.06	86.88	0.04	0.4	39.42
tdsxgs	1973-85	2.1	-0.1	no	0.47	0.01	167.62	0.48	9.2*	167.54
tdsgnp	1973-85	1.8	0.0	no	0.40	0.02	581.68	0.06	0.6	192.61
intxgs	1973-85	1.2	0.4	und	0.53	0.00	272.00	0.37	6.0*	249.78
intgnp	1973-85	1.1	0.4	und	0.43	0.01	838.53	0.27	3.7	725.72

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov										
dodxgs										
dodgnp										
tdsxgs										
tdsgnp										
intxgs										
intgnp										

Appendix A.(8). Summary of Impact of Debt in El Salvador.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1971-87	1.4	0.3	no	0.64	0.00	-0.85	0.00	0.0	0.06
dodxgs	1970-87	0.9	0.5	pos	0.64	0.00	-0.05	0.27	5.6*	-0.04
dodgnp	1970-87	1.1	0.4	pos	0.72	0.00	-0.24	0.50	15.0**	-0.23
tdsxgs	1970-87	0.8	0.6	pos	0.43	0.00	-0.37	0.14	0.2	0.08
tdsgnp	1970-87	0.9	0.6	pos	0.40	0.00	-1.46	0.01	0.1	0.19
intxgs	1970-87	1.0	0.4	pos	0.67	0.00	-1.19	0.34	7.7*	-0.95
intgnp	1970-87	1.3	0.3	und	0.77	0.00	-5.38	0.63	25.2**	-5.25

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1971-87	0.6	0.5	pos	0.58	0.00	-12.09	0.43	10.4**	-11.13
dodxgs	1970-87	0.4	0.6	pos	0.57	0.00	-0.79	0.68	32.4**	-1.02
dodgnp	1970-87	0.4	0.6	pos	0.45	0.00	-2.93	0.54	17.9**	-4.36
tdsxgs	1970-87	0.6	0.5	pos	0.51	0.00	-6.19	0.48	14.1**	-6.05
tdsgnp	1970-87	0.5	0.6	pos	0.34	0.01	-20.59	0.08	1.3	-8.61
intxgs	1970-87	0.5	0.6	pos	0.53	0.00	-16.22	0.57	20.3**	-19.61
intgnp	1970-87	0.4	0.6	pos	0.39	0.01	-58.79	0.41	10.3**	-79.02

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1971-87	1.4	0.3	no	0.52	0.00	-0.68	0.06	0.9	0.28
dodxgs	1971-87	0.9	0.5	pos	0.53	0.00	-0.04	0.21	3.6	-0.03
dodgnp	1971-87	1.1	0.4	pos	0.62	0.00	-0.20	0.35	7.5*	-0.17
tdsxgs	1971-87	0.8	0.5	pos	0.34	0.01	-0.30	0.00	0.1	-0.03
tdsgnp	1971-87	0.9	0.5	pos	0.33	0.02	-1.20	0.00	0.0	-0.02
intxgs	1971-87	1.0	0.4	pos	0.58	0.00	-0.98	0.28	5.6*	-0.75
intgnp	1971-87	1.3	0.3	und	0.69	0.00	-4.56	0.50	14.1**	-4.12

Appendix A.(9). Summary of Impact of Debt in Guatemala.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p=.05}$	slope
intgov	1972-79	0.3	0.7	pos	0.00	0.88	0.67	0.60	7.6*	3.02
dodxgs	1972-79	0.3	0.6	pos	0.00	0.89	0.04	0.00	0.0	-0.02
dodgnp	1972-79	0.4	0.6	pos	0.04	0.63	-0.70	0.02	0.1	-0.26
tdsxgs	1972-79	1.2	0.3	und	0.42	0.08	0.63	0.87	34.3**	0.10
tdsgnp	1972-79	1.2	0.3	und	0.44	0.07	3.41	0.29	2.1	-2.27
intxgs	1972-79	0.3	0.6	pos	0.09	0.46	2.34	0.07	0.4	1.10
intgnp	1972-79	0.3	0.6	pos	0.03	0.67	7.59	0.05	0.3	5.08

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p=.05}$	slope
intgov	1972-79	2.1	-0.2	no	0.01	0.82	1.86	0.26	1.7	-12.02
dodxgs	1972-79	2.4	-0.4	no	0.05	0.58	0.25	0.44	4.0	0.66
dodgnp	1972-79	2.7	-0.5	und	0.15	0.35	2.36	0.55	6.2	3.69
tdsxgs	1972-79	2.3	-0.2	no	0.05	0.59	-0.39	0.05	0.3	0.80
tdsgnp	1972-79	2.3	-0.2	no	0.04	0.62	-1.93	0.05	0.3	3.77
intxgs	1972-79	2.3	-0.3	no	0.03	0.68	2.39	0.37	3.0	8.72
intgnp	1972-79	2.4	-0.4	no	0.08	0.51	20.99	0.44	4.0	47.09

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p=.05}$	slope
intgov	1972-79	0.3	0.7	pos	0.01	0.85	0.89	0.63	8.4*	3.37
dodxgs	1972-79	0.4	0.6	pos	0.00	0.91	0.03	0.01	0.0	-0.03
dodgnp	1972-79	0.4	0.6	pos	0.05	0.61	-0.78	0.02	0.1	-0.34
tdsxgs	1972-79	1.2	0.3	und	0.41	0.09	0.65	0.88	35.9**	0.10
tdsgnp	1972-79	1.2	0.3	und	0.43	0.08	3.55	0.30	2.2	-0.26
intxgs	1972-79	0.4	0.6	pos	0.09	0.48	2.39	0.06	0.3	1.08
intgnp	1972-79	0.3	0.6	pos	0.03	0.69	7.55	0.04	0.2	4.87

Appendix A.(10). Summary of Impact of Debt in Honduras.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	F^{prob}	slope
intgov	1972-76	2.8	-0.5	und	0.88	0.02	0.94	0.95	36.0°	0.92
dodxgs	1972-79	1.5	0.2	no	0.69	0.01	-0.14	0.45	4.2	-0.12
dodgnp	1972-79	1.8	0.0	no	0.78	0.00	-0.30	0.76	15.9°	-0.31
tdsxgs	1972-79	1.9	-0.1	no	0.63	0.02	-0.72	0.05	0.3	0.83
tdsgnp	1972-79	1.8	-0.0	no	0.62	0.02	-1.61	0.54	5.7	-0.27
intxgs	1972-79	2.0	-0.1	no	0.76	0.01	-1.83	0.86	31.9°°	-2.10
intgnp	1972-79	2.0	-0.1	no	0.74	0.01	-4.03	0.90	44.0°°	-4.87

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	F^{prob}	slope
intgov	1972-76	2.3	-0.3	no	0.90	0.01	-15.13	0.96	42.7°	-14.35
dodxgs	1972-79	1.4	0.0	no	0.82	0.00	1.35	0.78	18.1°°	1.39
dodgnp	1972-79	1.6	-0.1	no	0.94	0.00	3.01	0.95	89.4°°	3.16
tdsxgs	1972-79	1.9	-0.0	no	0.98	0.00	8.21	0.98	247.0°°	8.33
tdsgnp	1972-79	1.5	0.2	no	0.97	0.00	18.25	0.95	93.7°°	17.93
intxgs	1972-79	2.9	-0.6	und	0.97	0.00	18.85	1.00	1131.1°°	19.06
intgnp	1972-79	2.6	-0.4	no	0.97	0.00	42.02	0.99	448.7°°	43.04

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	F^{prob}	slope
intgov	1972-76	2.8	-0.5	und	0.92	0.01	1.22	0.97	57.9°	1.20
dodxgs	1972-76	2.1	-0.3	no	0.91	0.01	-0.07	0.96	50.8°	-0.07
dodgnp	1972-76	1.3	0.1	und	0.97	0.00	-0.19	0.34	2.5	0.04
tdsxgs	1972-76	2.5	-0.4	no	0.93	0.01	-0.84	0.98	119.6°	-0.94
tdsgnp	1972-76	2.5	-0.3	no	0.86	0.02	-2.03	0.96	44.0°°	-2.48
intxgs	1972-76	2.5	-0.5	no	0.93	0.01	-1.48	1.00	45747.0°°	-1.66
intgnp	1972-76	2.4	-0.4	no	0.89	0.02	-3.74	0.99	163.9°°	-4.46

Appendix A.(11). Summary of Impact of Debt in Mexico.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{pr<.05}$	slope
intgov	1972-88	1.2	0.4	und	0.85	0.00	-0.21	0.74	40.5**	-0.20
dodxgs	1972-87	0.4	0.8	pos	0.29	0.03	-0.03	0.05	0.7	-0.01
dodgnp	1972-87	0.6	0.7	pos	0.72	0.00	-0.18	0.57	17.0**	-0.18
tdsxgs	1972-87	0.3	0.8	pos	0.03	0.53	0.05	0.00	0.0	0.00
tdsgnp	1972-87	0.3	0.7	pos	0.30	0.03	-0.90	0.13	2.0	-0.45
intxgs	1972-87	0.4	0.7	pos	0.38	0.01	-0.38	0.07	1.0	-0.17
intgnp	1972-87	0.4	0.7	pos	0.69	0.00	-1.94	0.57	17.3**	-2.34

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{pr<.05}$	slope
intgov	1972-87	0.4	0.7	pos	0.01	0.67	0.27	0.71	31.9**	-2.69
dodxgs	1972-87	0.4	0.7	pos	0.03	0.50	0.11	0.12	1.7	-0.20
dodgnp	1972-87	0.5	0.7	pos	0.08	0.29	0.62	0.31	5.8*	-1.43
tdsxgs	1972-87	0.6	0.7	pos	0.14	0.15	1.22	0.01	0.1	-0.20
tdsgnp	1972-87	0.8	0.5	pos	0.28	0.04	8.80	0.12	1.8	-5.11
intxgs	1972-87	0.6	0.7	pos	0.42	0.01	4.10	0.05	0.7	1.70
intgnp	1972-87	0.5	0.6	pos	0.26	0.04	12.11	0.03	0.4	-5.72

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{pr<.05}$	slope
intgov	1972-88	1.4	0.3	und	0.04	0.44	-0.02	0.03	0.4	-0.02
dodxgs	1972-87	1.1	0.4	und	0.06	0.38	0.01	0.01	0.1	0.00
dodgnp	1972-87	1.1	0.4	pos	0.00	0.80	-0.01	0.01	0.2	-0.02
tdsxgs	1972-87	1.5	0.2	no	0.20	0.09	0.08	0.06	0.8	0.05
tdsgnp	1972-87	1.1	0.4	pos	0.00	0.94	0.02	0.02	0.2	-0.15
intxgs	1972-87	1.0	0.4	pos	0.01	0.80	-0.02	0.26	4.5*	-0.35
intgnp	1972-87	1.0	0.4	pos	0.06	0.37	-0.30	0.33	6.5*	-1.85

Appendix A.(12). Summary of Impact of Debt in Nicaragua.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1970-80	1.6	0.0	no	0.50	0.02	-0.47	0.36	4.5	-0.44
dodxgs	1970-80	1.8	0.0	no	0.56	0.01	-0.02	0.45	6.4*	-0.02
dodgnp	1970-80	2.6	-0.3	no	0.74	0.00	-0.09	0.81	35.2**	-0.09
tdsxgs	1970-80	0.7	0.4	pos	0.04	0.57	0.12	0.10	0.9	0.10
tdsgnp	1970-80	0.6	0.5	pos	0.01	0.73	0.26	0.25	2.7	0.61
intxgs	1970-80	1.0	0.4	und	0.35	0.06	-0.77	0.07	0.6	-0.42
intgnp	1970-80	1.1	0.2	und	0.36	0.05	-2.04	0.00	0.0	0.10

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1972-80	1.3	0.3	und	0.00	0.97	0.82	0.34	3.1	-42.55
dodxgs	1972-80	1.2	0.4	und	0.04	0.60	0.34	0.08	0.5	0.50
dodgnp	1972-80	1.3	0.3	und	0.00	0.89	0.35	0.02	0.1	-1.20
tdsxgs	1972-80	1.2	0.3	und	0.00	0.99	0.15	0.01	0.0	2.05
tdsgnp	1972-80	1.3	0.3	und	0.00	0.88	-7.03	0.01	0.1	-9.53
intxgs	1972-80	1.7	0.1	no	0.39	0.07	61.85	0.49	5.7	103.41
intgnp	1972-80	1.8	0.0	no	0.16	0.28	109.32	0.00	1.4	0.10

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1970-80	1.6	0.0	no	0.30	0.08	-0.34	0.17	1.6	-0.29
dodxgs	1970-80	2.2	-0.1	no	0.59	0.01	-0.02	0.61	12.7**	-0.02
dodgnp	1970-80	2.7	-0.4	und	0.68	0.00	-0.08	0.77	27.4**	-0.08
tdsxgs	1970-80	0.9	0.3	pos	0.04	0.57	0.11	0.05	0.4	0.07
tdsgnp	1970-80	0.8	0.4	pos	0.04	0.54	0.41	0.21	2.2	0.64
intxgs	1970-80	1.1	0.3	und	0.24	0.13	-0.58	0.09	0.8	-0.48
intgnp	1970-80	1.2	0.2	und	0.20	0.17	-1.38	0.01	0.1	0.60

Appendix A.(13). Summary of Impact of Debt in Panama.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1973-86	0.9	0.4	pos	0.50	0.00	-0.33	0.02	0.2	-0.14
dodxgs	1973-86	0.7	0.5	pos	0.34	0.03	0.06	0.02	0.2	-0.12
dodgnp	1973-86	0.9	0.5	pos	0.51	0.00	-0.12	0.02	0.2	-0.13
tdsxgs	1973-86	0.5	0.6	pos	0.14	0.18	0.14	0.01	0.1	-0.11
tdsgnp	1973-86	1.0	0.4	pos	0.23	0.09	-0.25	0.01	0.1	-0.92
intxgs	1973-86	0.4	0.6	pos	0.01	0.70	0.22	0.01	0.1	-0.08
intgnp	1973-86	1.1	0.4	und	0.80	0.00	-1.00	0.01	0.2	-0.12

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1973-86	0.6	0.6	pos	0.60	0.00	4.12	0.04	0.4	-0.26
dodxgs	1973-86	0.3	0.7	pos	0.09	0.30	-0.35	0.03	0.3	-0.23
dodgnp	1973-86	0.3	0.7	pos	0.36	0.02	1.15	0.03	0.3	-0.22
tdsxgs	1973-86	0.3	0.7	pos	0.06	0.39	-1.06	0.02	0.2	-0.17
tdsgnp	1973-86	0.2	0.7	pos	0.02	0.64	0.81	0.01	0.1	-0.15
intxgs	1973-86	0.1	0.8	pos	0.03	0.57	3.64	0.03	0.3	-0.22
intgnp	1973-86	0.3	0.7	pos	0.34	0.03	7.51	0.03	0.4	-0.24

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1973-86	0.9	0.4	pos	0.16	0.16	-0.17	0.01	0.1	-0.10
dodxgs	1973-86	0.9	0.4	pos	0.17	0.14	0.04	0.00	0.0	-0.03
dodgnp	1973-86	1.0	0.4	pos	0.29	0.05	-0.08	0.01	0.1	-0.11
tdsxgs	1973-86	0.7	0.5	pos	0.07	0.37	0.09	0.01	0.2	-0.12
tdsgnp	1973-86	1.2	0.3	und	0.19	0.12	-0.21	-0.08	0.1	-0.11
intxgs	1973-86	0.7	0.5	pos	0.00	0.81	0.12	0.01	0.1	-0.07
intgnp	1973-86	1.0	0.4	pos	0.48	0.01	-0.70	0.00	0.0	-0.06

Appendix A.(14). Summary of Impact of Debt in Paraguay.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1972-84	2.4	-0.1	no	0.16	0.16	-0.30	0.37	5.8*	-0.78
dodxgs	1972-84	2.5	-0.2	no	0.21	0.10	-0.01	0.28	3.9	-0.01
dodgnp	1972-84	2.2	-0.1	no	0.11	0.25	-0.03	0.27	3.6	-0.11
tdsxgs	1972-84	2.4	-0.1	no	0.18	0.13	-0.08	0.28	4.0	-0.15
tdsgnp	1972-84	2.2	-0.0	no	0.08	0.33	-0.22	0.23	2.9	-1.25
intxgs	1972-84	2.6	-0.2	no	0.25	0.07	-0.18	0.41	6.9*	-0.27
intgnp	1972-84	2.3	-0.1	no	0.13	0.20	-0.63	0.42	7.3*	-2.62

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1972-84	0.4	0.7	pos	0.05	0.44	246.88	0.08	0.8	-336.35
dodxgs	1972-86	0.3	0.7	pos	0.05	0.44	4.92	0.01	0.1	-2.00
dodgnp	1972-86	0.3	0.8	pos	0.01	0.76	8.87	0.10	1.4	-28.94
tdsxgs	1972-86	0.3	0.8	pos	0.00	0.87	10.28	0.15	2.1	-82.26
tdsgnp	1972-86	0.3	0.8	pos	0.00	0.95	-15.68	0.17	2.5	-320.22
intxgs	1972-86	0.3	0.7	pos	0.05	0.43	94.58	0.07	0.9	-112.53
intgnp	1972-86	0.3	0.7	pos	0.01	0.72	193.67	0.14	1.9	-596.18

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{p<.05}$	slope
intgov	1972-84	2.4	-0.1	no	0.05	0.42	-0.17	0.29	4.0	-0.67
dodxgs	1972-84	2.5	-0.2	no	0.11	0.25	-0.01	0.24	3.2	-0.01
dodgnp	1972-84	2.3	-0.1	no	0.03	0.55	-0.02	0.22	2.8	-0.10
tdsxgs	1972-84	2.4	-0.1	no	0.08	0.33	-0.05	0.24	3.2	-0.13
tdsgnp	1972-84	2.2	-0.1	no	0.01	0.68	-0.09	0.18	2.2	-1.10
intxgs	1972-84	2.6	-0.2	no	0.13	0.21	-0.13	0.35	5.4*	-0.24
intgnp	1972-84	2.3	-0.1	no	0.04	0.48	-0.35	0.36	5.5*	-2.34

Appendix A.(15). Summary of Impact of Debt in Peru.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{1,15}$	slope
intgov	1972-82	1.8	0.1	no	0.76	0.00	-0.60	0.72	20.9**	-0.63
dodxgs	1972-82	0.5	0.7	pos	0.02	0.70	-0.01	0.13	1.2	0.03
dodgnp	1972-82	1.0	0.5	und	0.38	0.04	-0.25	0.01	0.1	0.05
tdsxgs	1972-82	0.8	0.6	pos	0.34	0.06	-0.34	0.06	0.5	-0.10
tdsgnp	1972-82	1.7	0.0	no	0.83	0.00	-1.99	0.83	37.7**	-2.10
intxgs	1972-82	0.9	0.5	pos	0.43	0.03	-0.98	0.00	0.0	-0.09
intgnp	1972-82	1.7	0.1	no	0.75	0.00	-4.51	0.67	16.4**	-4.64

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{1,15}$	slope
intgov	1972-82	1.3	-0.0	no	0.70	0.00	-3.27	0.85	45.7**	-4.03
dodxgs	1972-82	0.7	0.6	pos	0.01	0.83	0.04	0.12	1.1	0.23
dodgnp	1972-82	1.1	0.3	und	0.37	0.05	-1.38	0.22	2.3	-1.39
tdsxgs	1972-82	0.8	0.5	pos	0.06	0.45	-0.84	0.01	0.1	-0.30
tdsgnp	1972-82	1.2	0.1	und	0.59	0.01	-9.53	0.64	14.0**	-11.78
intxgs	1972-82	0.9	0.5	pos	0.10	0.34	-2.74	0.01	0.0	0.94
intgnp	1972-82	1.4	0.0	no	0.60	0.01	-22.91	0.69	18.1**	-28.06

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{1,15}$	slope
intgov	1972-82	1.8	0.1	no	0.57	0.01	-0.46	0.54	9.5*	-0.50
dodxgs	1972-82	0.6	0.7	pos	0.01	0.84	-0.01	0.12	1.0	0.03
dodgnp	1972-82	1.1	0.4	und	0.25	0.12	-0.18	0.06	0.6	0.12
tdsxgs	1972-82	1.1	0.4	und	0.29	0.09	-0.28	0.04	0.3	-0.08
tdsgnp	1972-82	1.7	0.0	no	0.69	0.00	-1.62	0.72	20.1**	-1.80
intxgs	1972-82	1.1	0.4	und	0.33	0.06	-0.77	0.00	0.0	0.00
intgnp	1972-82	1.7	0.1	no	0.58	0.01	-3.54	0.51	8.4*	-3.78

Appendix A.(16). Summary of Impact of Debt in Uruguay.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{.05}$	slope
intgov	1972-86	0.8	0.6	pos	0.58	0.00	-0.58	0.28	4.7	-0.42
dodxgs	1972-86	0.5	0.7	pos	0.38	0.01	-0.03	0.14	2.0	-0.20
dodgnp	1972-86	0.7	0.6	pos	0.50	0.00	-0.09	0.18	2.7	-0.06
tdsxgs	1972-86	0.6	0.7	pos	0.05	0.42	0.05	0.41	8.5*	-0.07
tdsgnp	1972-86	0.2	0.9	pos	0.08	0.30	-0.26	0.44	9.5*	-0.34
intxgs	1972-86	0.7	0.6	pos	0.52	0.00	-0.29	0.20	3.1	-0.21
intgnp	1972-86	0.8	0.6	pos	0.55	0.00	-0.89	0.23	3.6	-0.65

Impact of Debt on Central Government Expenditures in Education (1980)

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{.05}$	slope
intgov	1972-86	1.5	0.2	no	0.75	0.00	-110.41	0.70	27.6**	-110.13
dodxgs	1972-86	0.8	0.6	pos	0.55	0.00	-6.00	0.43	8.9*	-6.25
dodgnp	1972-86	1.1	0.4	pos	0.68	0.00	-17.84	0.58	16.6**	-18.45
tdsxgs	1972-86	0.6	0.7	pos	0.00	0.96	0.48	0.40	8.1*	-13.79
tdsgnp	1972-86	0.3	0.8	pos	0.25	0.06	-75.60	0.54	14.3**	-79.01
intxgs	1972-86	1.2	0.4	und	0.65	0.00	-54.55	0.58	16.5**	-57.53
intgnp	1972-86	1.2	0.3	und	0.70	0.00	-168.40	0.65	21.9**	-178.64

Impact of Debt on Education as a % of Central Government Net of Debt

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{.05}$	slope
intgov	1972-86	0.8	0.6	pos	0.51	0.00	-0.52	0.21	3.1	-0.35
dodxgs	1972-86	0.5	0.7	pos	0.33	0.03	-0.03	0.12	1.7	-0.02
dodgnp	1972-86	0.7	0.6	pos	0.45	0.01	-0.08	0.16	2.3	-0.05
tdsxgs	1972-86	0.7	0.6	pos	0.06	0.38	0.05	0.38	7.5*	-0.06
tdsgnp	1972-86	0.3	0.9	pos	0.07	0.35	-0.22	0.40	8.2*	-0.32
intxgs	1972-86	0.7	0.6	pos	0.47	0.00	-0.26	0.17	2.5	-0.18
intgnp	1972-86	0.7	0.6	pos	0.50	0.00	-0.81	0.20	3.0	-0.58

Appendix A.(17). Summary of Impact of Debt in Venezuela.

Impact of Debt on Education as a % of Central Government Expenditures

Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1970-86	1.8	0.1	no	0.38	0.01	0.21	0.33	6.9*	0.21
dodxgs	1970-86	1.7	0.1	no	0.27	0.03	0.02	0.20	3.5	0.17
dodgnp	1970-86	1.8	0.1	no	0.34	0.01	0.08	0.30	6.0*	0.08
tdsxgs	1970-86	1.6	0.2	no	0.30	0.02	0.15	0.23	4.2	0.14
tdsgnp	1970-86	1.7	0.2	no	0.33	0.02	0.58	0.27	5.2*	0.60
intxgs	1970-86	1.7	0.2	no	0.33	0.02	0.25	0.26	5.0*	0.25
intgnp	1970-86	1.7	0.1	no	0.36	0.01	0.96	0.30	6.1*	0.99

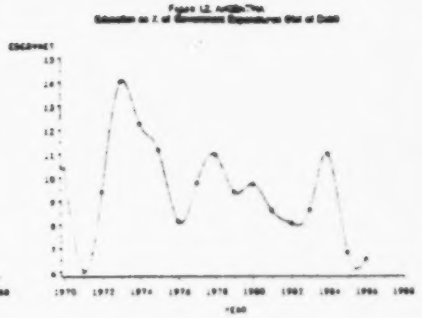
Impact of Debt on Central Government Expenditures in Education (1980)

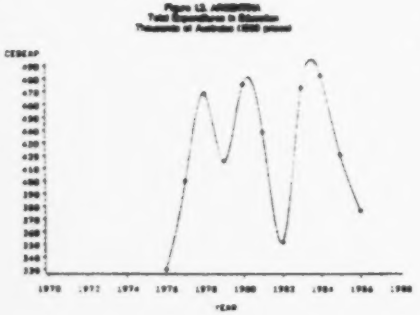
Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1970-86	0.3	0.8	pos	0.53	0.00	352.24	0.01	0.2	-33.52
dodxgs	1970-86	0.3	0.7	pos	0.28	0.03	27.83	0.07	1.0	-4.55
dodgnp	1970-86	0.4	0.7	pos	0.42	0.01	130.78	0.14	2.3	-36.32
tdsxgs	1970-86	0.6	0.6	pos	0.50	0.00	281.79	0.02	0.3	-20.24
tdsgnp	1970-86	0.7	0.6	pos	0.67	0.00	1173.79	0.01	0.1	-61.29
intxgs	1970-86	0.4	0.7	pos	0.47	0.00	439.24	0.04	0.5	-53.10
intgnp	1970-86	0.3	0.7	pos	0.60	0.00	1762.70	0.08	1.3	-530.17

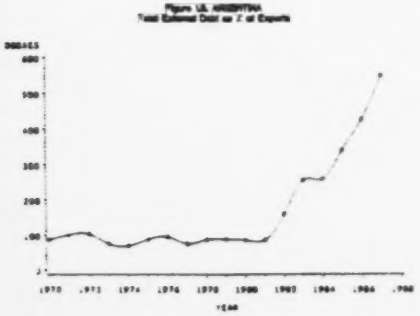
Impact of Debt on Education as a % of Central Government Net of Debt

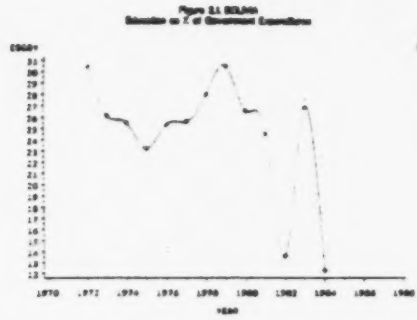
Debt Index	Period	Autocorrel. DW	1st		OLS Regression R^2	p of F	slope	Cochrane-Orcutt R^2(C-O)	$F^{\alpha=.05}$	slope
intgov	1970-86	1.7	0.1	no	0.71	0.00	0.45	0.66	27.4**	0.45
dodxgs	1970-86	1.6	0.1	no	0.51	0.00	0.04	0.34	7.1*	0.03
dodgnp	1970-86	2.0	0.0	no	0.65	0.00	0.18	0.63	24.3**	0.18
tdsxgs	1970-86	1.6	0.2	no	0.53	0.00	0.32	0.37	8.4*	0.27
tdsgnp	1970-86	1.5	0.2	no	0.59	0.00	1.20	0.49	13.2**	1.21
intxgs	1970-86	1.6	0.2	no	0.58	0.00	0.53	0.46	12.0**	0.49
intgnp	1970-86	1.6	0.2	no	0.65	0.00	2.01	0.56	17.7**	2.05

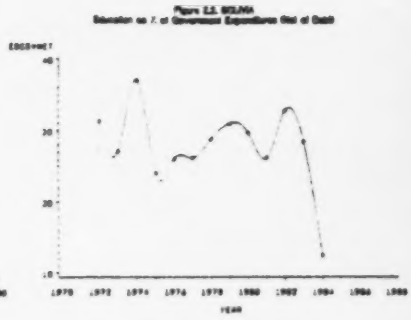
Appendix B

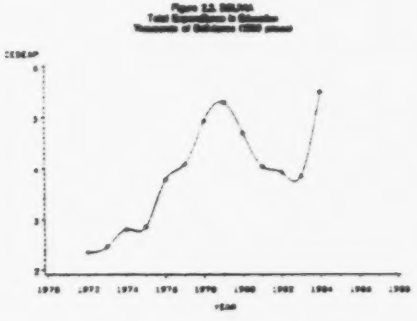


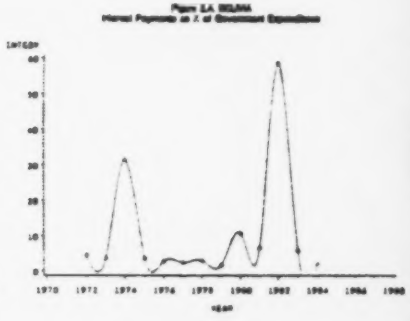


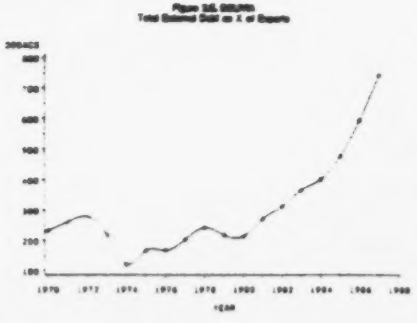


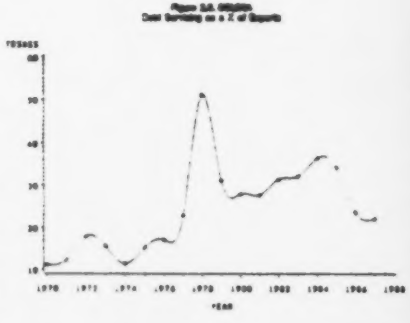


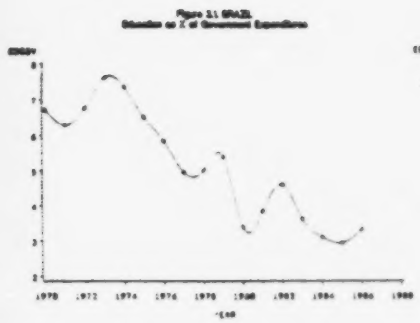


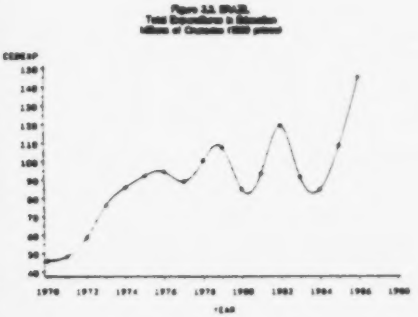


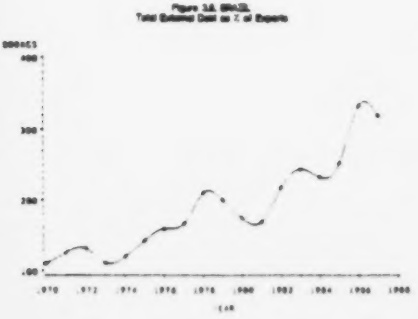


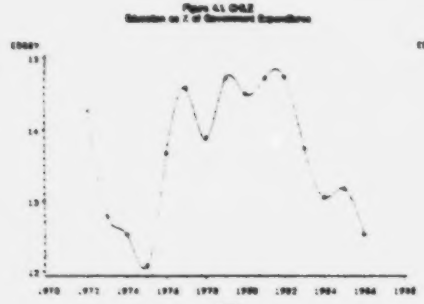


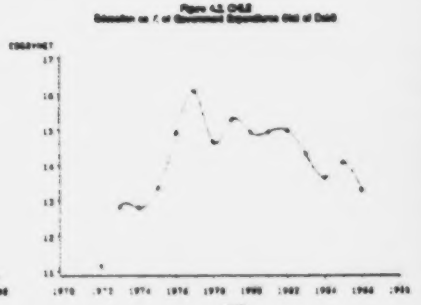


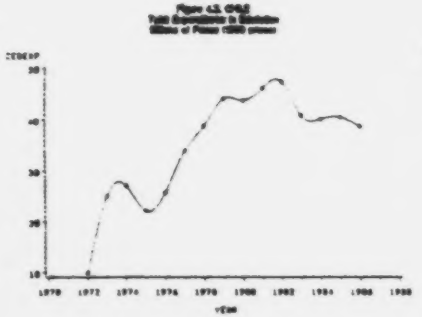


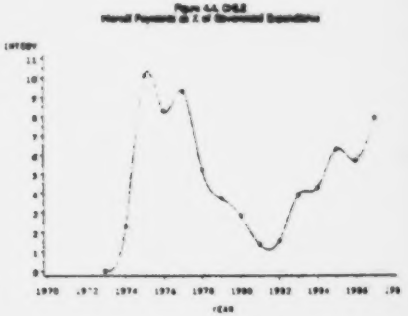


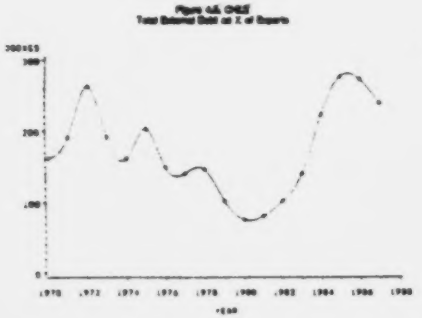


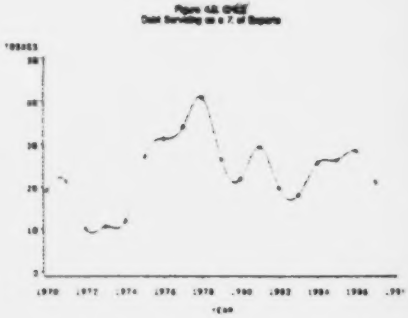


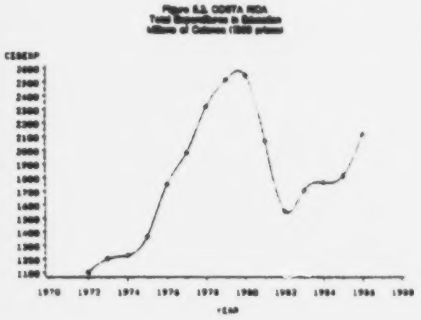


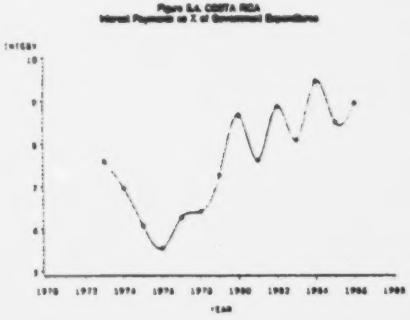


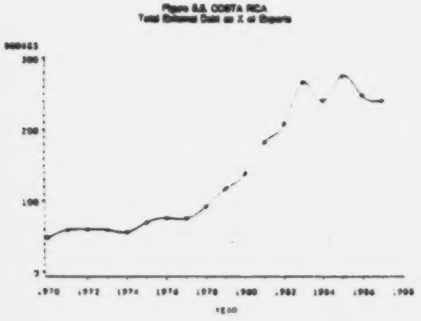


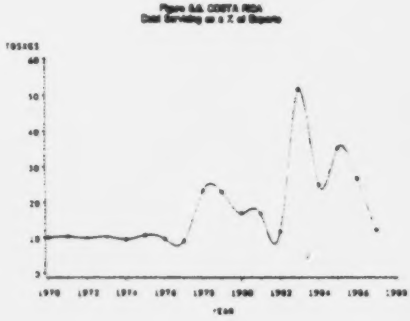


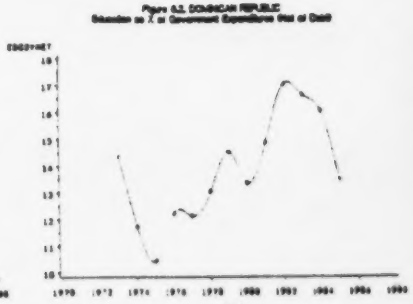


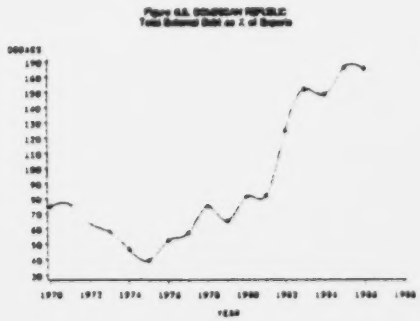


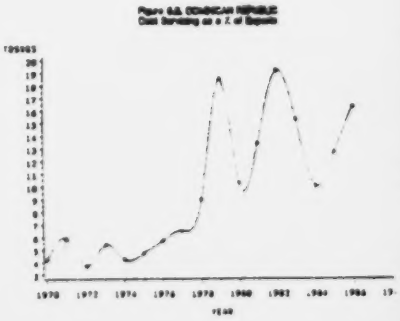


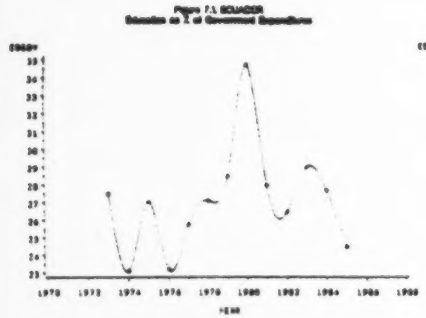


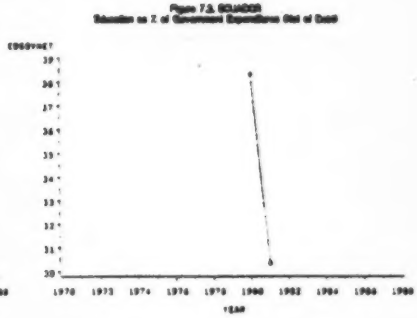


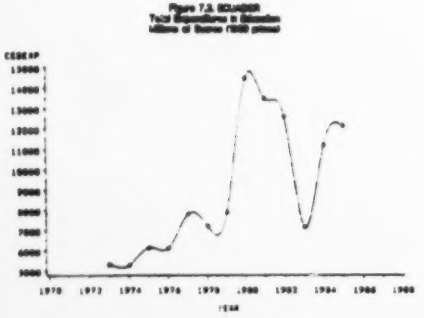


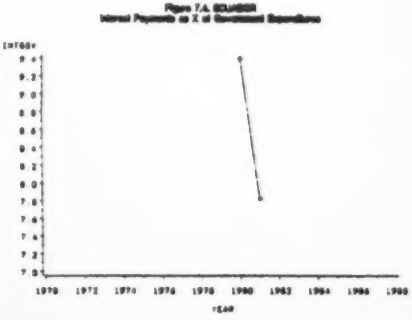


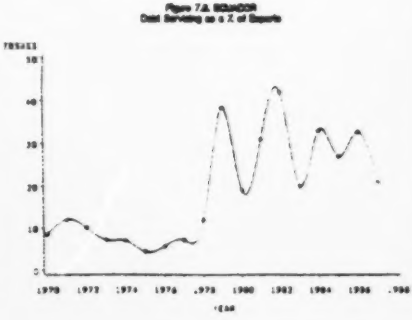


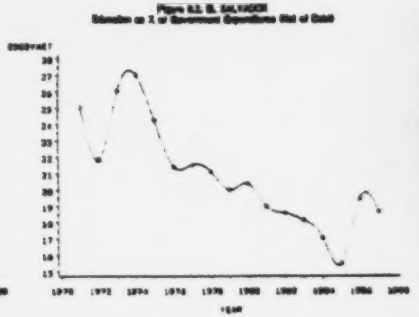


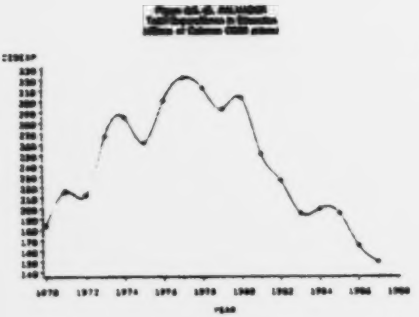


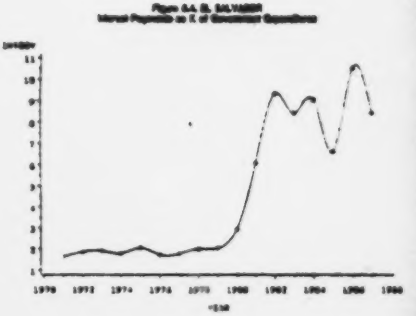


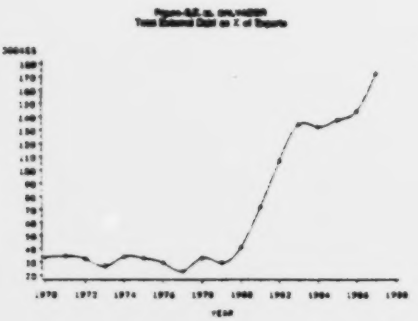


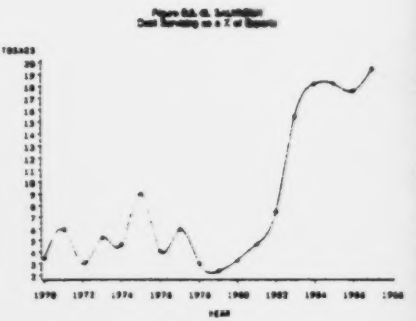


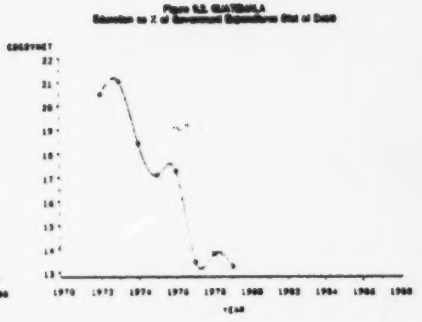


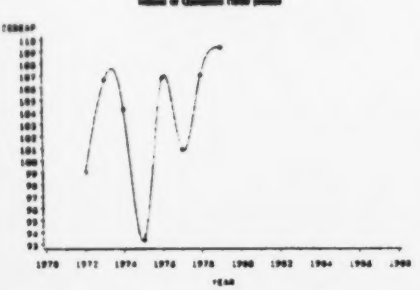


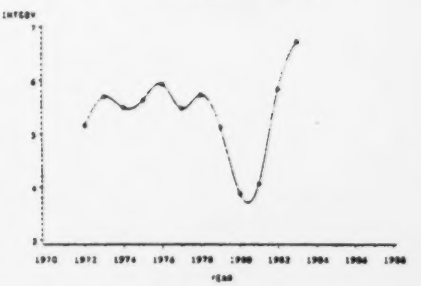


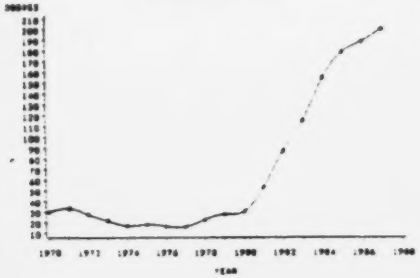


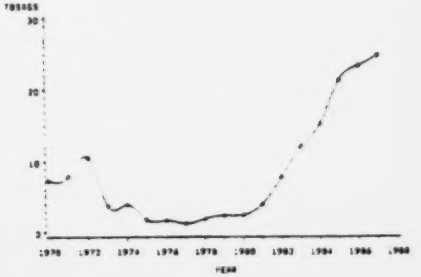


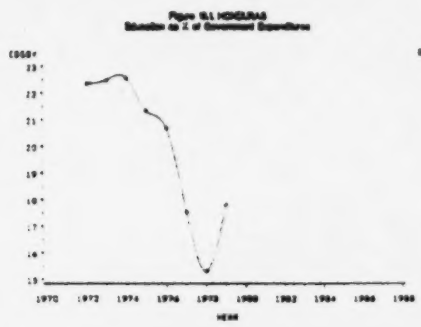


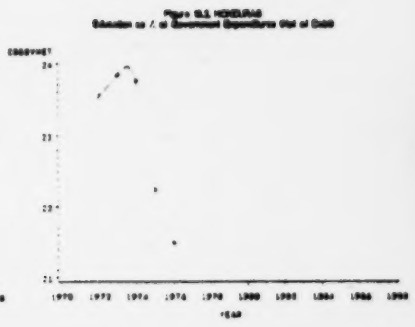


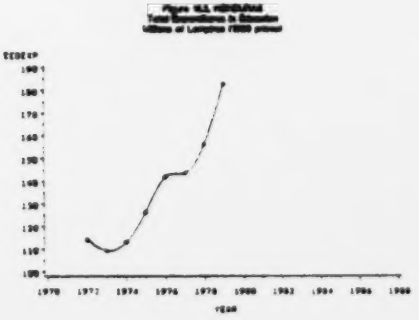


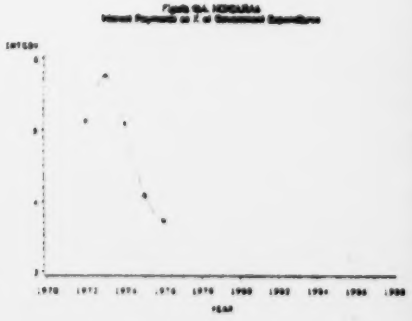


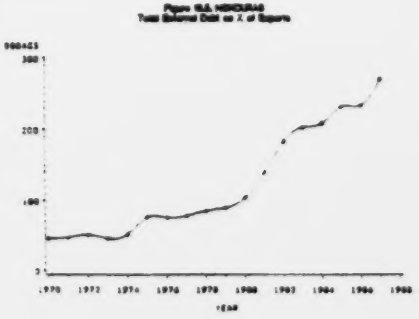


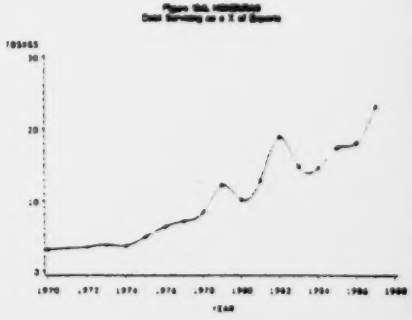


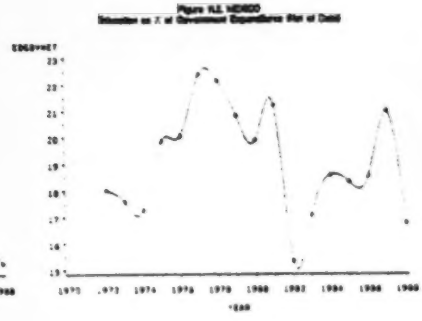


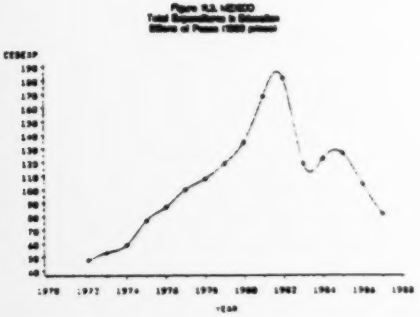


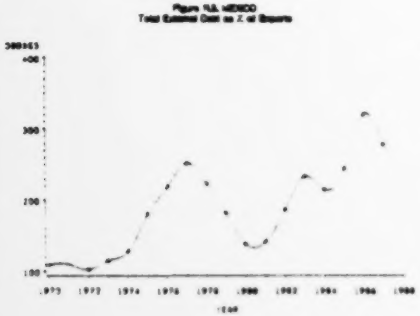


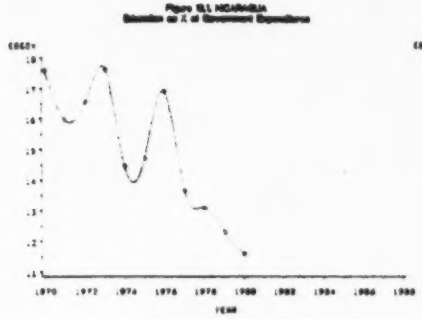


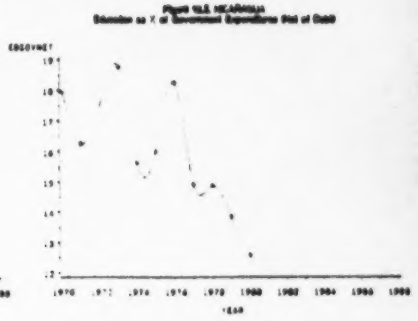


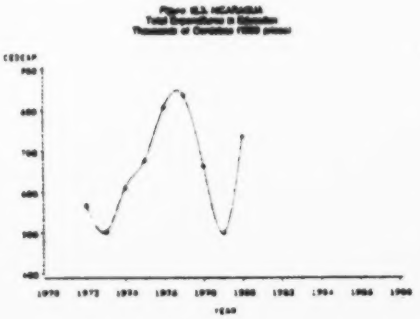


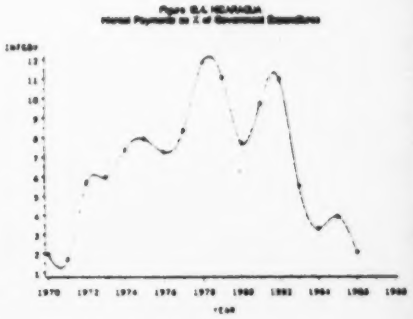


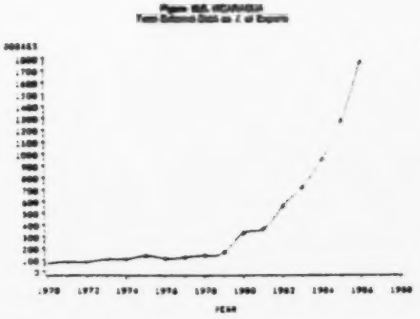


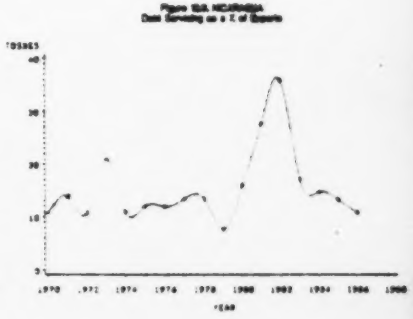


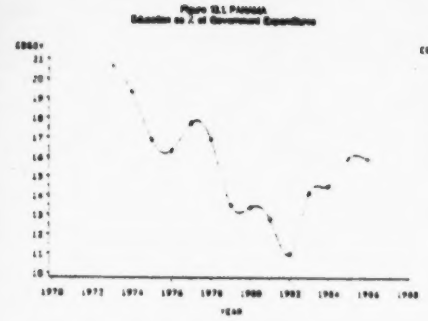


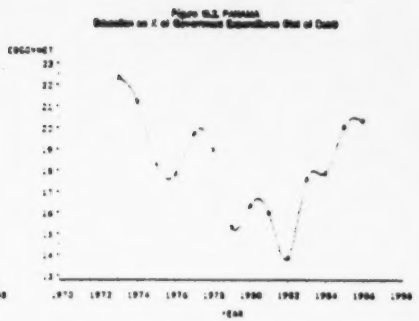


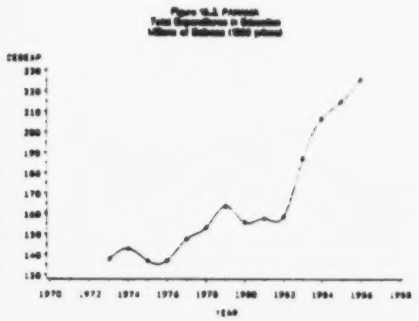


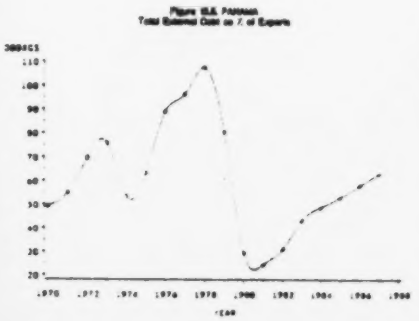


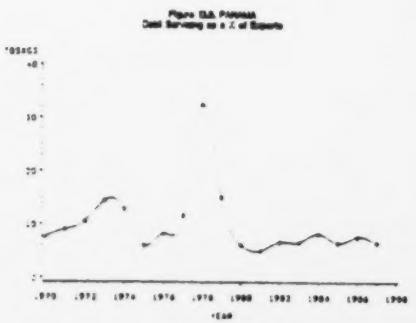


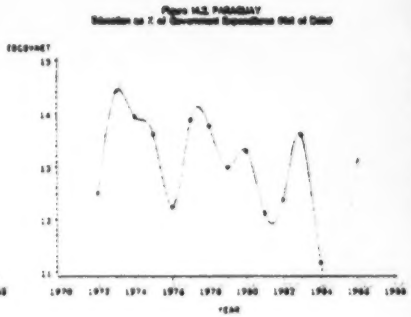


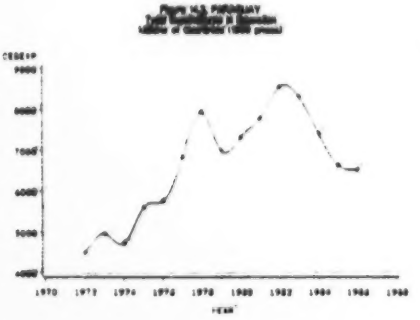


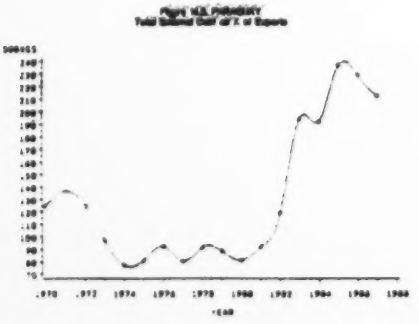


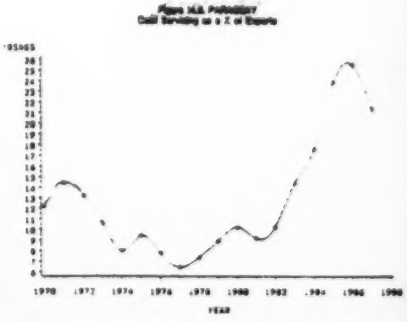


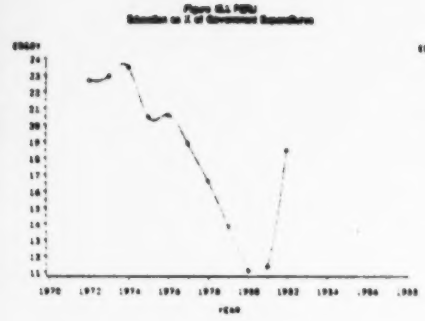


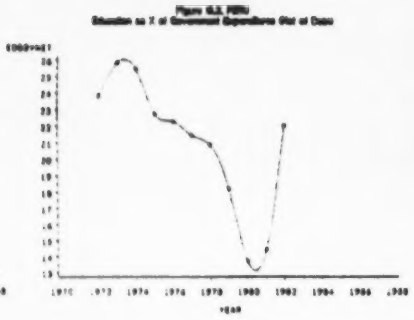


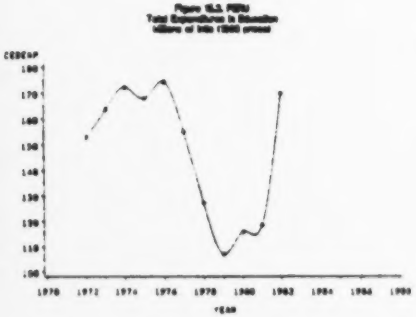


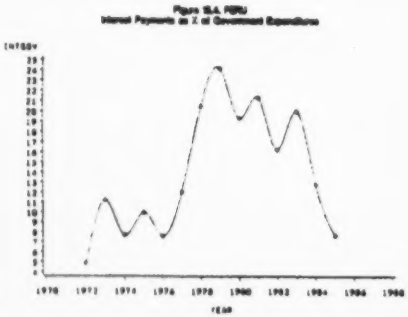


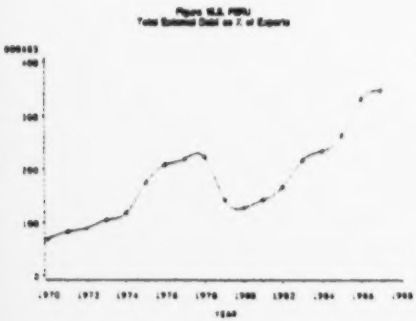


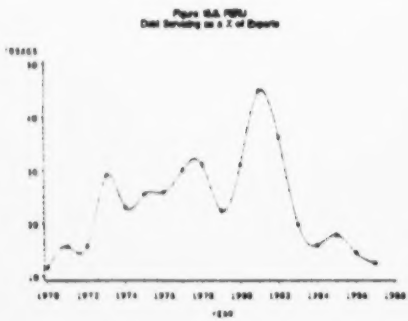


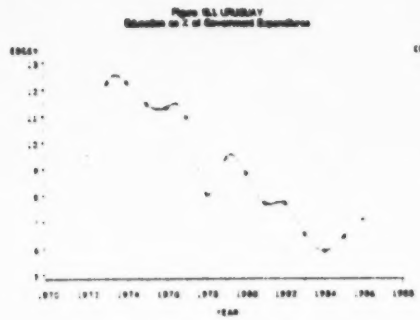


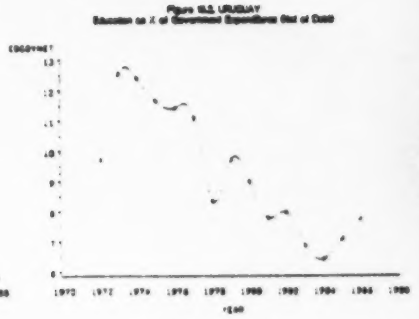


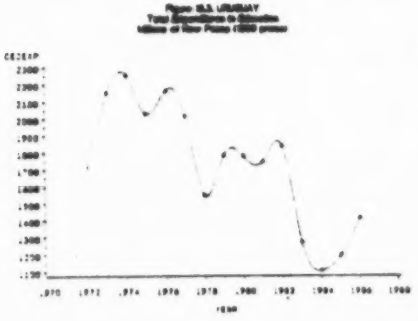


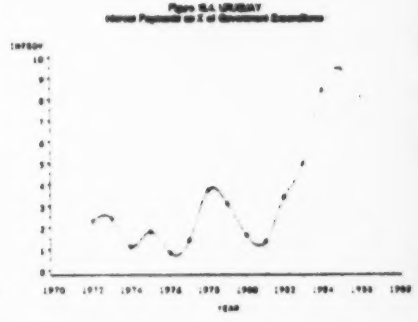


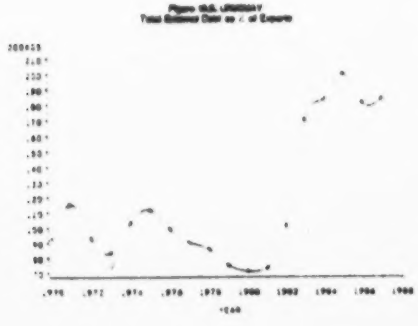


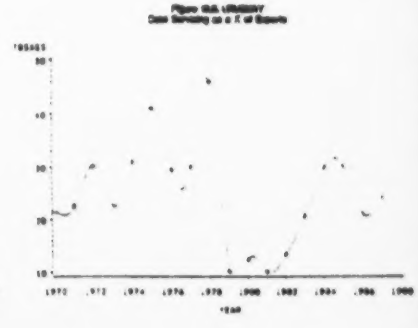


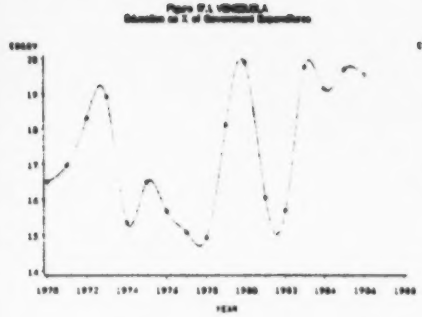


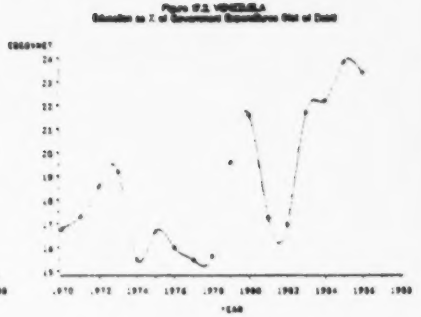


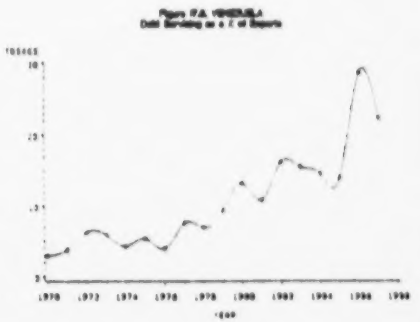












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IIEP Research Report No. 81

The purpose of this report is to examine the impact of the Latin American external debt on education. The study attempts to examine whether changes in the trends of educational expenditures are significantly related to the trends of the public external debt. Examining the impact of the external debt on government educational expenditures may help us to understand the potential of the debt to constrain long term development, given the important role of educational investments for such long term development. Given also that the 'debt problem' is probably not going to be solved in the short run, the analysis of such impact may also stimulate the emergence of policy alternatives to maintain the contribution of education to development.

The author

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Date Filmed

March 29, 1991